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CONTENTS AND SUBJECT INDEX

A Pathologist Scrutinizes the Specialty Boards: The William W. Root Lecture of Alpha Omega Alpha Honorary Medical Society. H. T. Karsner, M.D., Cleveland..1

Differential Diagnosis Between Lipid Pneumonia and Pulmonary Neoplasm: Treatment by Partial Lobectomy. A. L. Brown, M.D., and G. R. Biskind, M.D., San Francisco.4

The Clinical Status of a Group of Negro Sharecroppers. J. W. Thompson, M.B., Boston.....6

Vitallium Skull Plates. Fred W. Geib, M.D., Rochester, N. Y....8

Spontaneous Hypoglycemia in "Smoke" Drinkers. Thomas McP. Brown, M.D., and A. M. Harvey, M.D., Baltimore 12

Islet Cell Tumors of the Pancreas: Report of Case. K. A. Meyer, M.D., Leo Amtman, M.D., and Lawrence Perlman, M.D., Chicago.....16

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Lead in Urinary Calculi. Francis Carter Wood, M.D., New York..20

Sterility of the Male After Sympathectomies. Geza de Takats, M.D., and Loring S. Helfrich, M.D., Chicago 20

Surgical Gown with Instrument Pockets. Wesley J. Woolston, M.D., Pasadena, Calif. 21

An Outbreak of Botulism. J. C. Geiger, M.D., San Francisco...22

SPECIAL ARTICLE

Legal Responsibility for Medical Malpractice: VI. Further Information About Direct Causation and Damage. Hubert Winston Smith, LL.B., Boston.....23

COUNCIL ON PHYSICAL THERAPY 33

COUNCIL ON INDUSTRIAL HEALTH

The Industrial Medical Department 34

EDITORIALS

Ancient Propaganda Against Animal Experimentation Revived 36

Doctors for Britain.....37

Transcutaneal Virus Infections...37

Medical Aid for Britain.....38

CURRENT COMMENT

Vitamin Inspired Music.....39

State Society Purchases Sound Movie Equipment 39

Paraffining of Paper Milk Containers 39

BUREAU OF LEGAL MEDICINE AND LEGISLATION 63

(Subject Index on next page)

MEDICAL PREPAREDNESS

Examinations for Tuberculosis: Roentgenographic Findings of 41,809 Inductees and 9,541 National Guardsmen in New York City. H. R. Edwards, M.D., and David Ehrlich, M.D., New York.....40

Army Reserve Officers Ordered to Active Duty 46

ORGANIZATION SECTION

Medical and Surgical Care, Inc., Utica, N. Y.....49

Medical Economic Abstracts.....50

Official Notes.....51

Medical Legislation.....51

Woman's Auxiliary.....52

Griffith & Mitchell's Pediatrics—Rewritten

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See Also SAUNDERS ADVERTISEMENT on Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "MI," Medicolegal; "ME," Medical Economics; "OS," Organization Section; "SS," Student Section.

A. M. A. Board of Trustees meeting....OS-51
Abdomen, chronic pain from hypoglycemia.ab-71
Actuarial Society of America study on systolic vs. diastolic readings....C-62
Adenomyoma, pelvic endometriosis....ab-66
Adolescence, pubertas praecox from ovarian tumors....ab-66
Albuminuria in hypertensive heart disease...78
Alcohol, denatured, hypoglycemia in "smoke" drinkers....*12
injection of intercostal nerves....ab-73
American Academy of Ophthalmology and Otolaryngology home study courses....56
Board of Orthopaedic Surgery examination.56
Boards, pathologist scrutinizes....*1
Anderson, Hamilton, visits U. S....53
Animal bites, rabies from....58
blood to prepare plasma for transfusion..C-62
experimentation, Hearst's propaganda....E-36
Appendicitis, acute, in suburban community.ab-71
Arsphenamine intolerance, vitamin C for..ab-74
Association News....51
Association of Life Insurance Medical Directors blood pressure study....C-62
Associations, medical; expulsion of member.MI-63
Bacteria and paper milk containers....E-39
Bladder calculi, lead in....*20
Blood circulation, sensitivity to cold and drafts....78
coagulation in tuberculosis....ab-74
derivatives for transfusion....57
paternity; conclusiveness of tests....MI-64
pressure, high, signs in....78
pressure: systolic vs. diastolic readings.C-62
prothrombin levels (plasma), postoperative....ab-68
prothrombin time delayed, vitamin K for.ab-71
sedimentation rate in tuberculosis....ab-74
sugar, hypoglycemia, abdominal pain in..ab-71
sugar, hypoglycemia, in pancreas tumor...*17
sugar, hypoglycemia in "smoke" drinkers.*12
transfusion, animal blood used in preparing plasma for....C-62
Board Examinations....63
Book Notices....75
Books Received....Adv. page 30
Botulism from canned mushroom sauce....*22
Bundles for Britain....E-38
Bureau of Investigation....61
Bureau of Legal Medicine and Legislation...63
Calculi, lead in....*20
Cardiovascular renal diseases, diastolic and systolic pressure in....C-62
circulatory collapse and wound shock...ab-72
Cataract, senile, from droughts....ab-66
Cerebrospinal fluid, vitamin C in....ab-74
Claparède, Edouard, death....59
Cold, sensitivity to....78
Colostrum skin test for pregnancy....ab-65
Conjunctivitis, sulfanilamide ointment in..ab-66
Correspondence....62
Council on Industrial Health....34
Council on Physical Therapy....33
Coutard, Henri, appointment....53
Cranium, vitallium plates....*8
Crippled children, Du Pont Institute for....53
Davidson, E. Y., honored....53
Deaths....60
Disertori, B., Berne prize to....59
Dispensary, check list of equipment for....34
Drafts, sensitivity to....78
Drought factor in senile cataract....ab-66
Endometriosis, pelvic, treatment....ab-66
Eppert, Carl, vitamin inspired music....E-39
Erythrocytes in urine in hypertensive....78
European War, American Philosophical Society gift to Royal Society....57
blood derivatives for transfusion....57
bombing hospital ship....58
circulatory collapse and wound shock....ab-72
doctors for Britain....E-37
gas attack, preparations for....58
medical aid for Britain....E-38
nurses demand more money....58
Royal College of Surgeons museum destroyed....57
Eye, sulfanilamide ointment used in....ab-66
Fabricant, N. D., Casselberry Award to....54
Farmers, needy, medical care for....OS-50
Fetus, rigor mortis....78
Food, canned, botulism from....*22
Foreign Letters....57
Gallbladder, macroscopically nonpathologic.ab-68
Gas attack, preparations for....58
Gastroenteritis outbreaks, Ia....54
Gonorrhea in Negro sharecroppers....*6
Government Services....56
Gown, surgical, with instrument pockets....*21
Greenblatt, R. B., Crawford Long prize to..53
Guedel, A. E., Hickman Medal to....53
Gulland, Lovell, death....58
Hadwen, Walter R....E-36
Hearst, William R., antivivisectionist....E-36
Heart murmur, apical systolic in hypertensive disease....78
Henneberg, H., appointment....59
Heredity, human, clinic of....54
Hospital ship, bombing....58
state, quarantined for typhoid....53
Hydroa vacciniforme in young Indians....77
Hyperthyroidism, liver changes in....ab-68
India, population increase....58
Industrial health of Negro sharecroppers....*6
coronary thrombosis....ab-70
medical department, floor plans; equipment.34
Instrument pockets in surgical gown....*21
Insurance, life, blood pressure study....C-62
cash indemnity, for medical service....OS-49; OS-50
Kemp, Hardy A., dean at Ohio State....55
Lead in calculi and in tumors....*20
Legislation, Medical....51
Light sensitivity, hydroa vacciniforme....77
Liver, changes in hyperthyroidism....ab-68
Lungs cancer, differentiating from lipid pneumonia....*4
McCormick Child Research grant available..53
Malaria in Negro sharecroppers....*6
Malpractice, direct causation and damage...*23
phlebitis; heat treatment or disease as cause....MI-64
Marriages....59
Medical and Surgical Care Inc., Utica, N.Y.OS-49
Medical and Surgical Relief Committee....E-38
Medical Economic Abstracts....50
Medical Examinations and Licensure....63
Medical Preparedness....40
air corps station, hospital facilities....45
officers ordered to active duty....46
roentgen examination, cost of....*44
roentgen ray unit for army hospitals....45
surgeons of the four armies....45
tuberculosis in recruits, roentgen examination for....*40
MEDICAL SERVICE IN INDUSTRY....34
cash indemnity insurance for, Utica, N. Y. OS-49
for needy farmers....OS-50
Standard Oil New Jersey....OS-50
Medical Supplies for small plant dispensary..34
for Britain....E-38
Medicolegal Abstracts....63
Meetings, Coming Meetings....64
Menadione orally in delayed prothrombin time....ab-71
Meningitis, choriomeningitis virus, skin permeable to....E-37
Menopause, atypical migraine after....78
Metabolism, basal, Read's formula....ab-74
Metals in tumors and calculi....*20
Migraine, postmenopausal atypical....78
Milk, paraffining paper containers: bacteria efficiency....E-39
Motion Pictures, Georgia state society buys sound equipment....E-39
Musgrave Memorial Chair....53
Mushroom sauce (canned), botulism from..*22
Music, vitamin inspired....E-39
Myasthenia gravis, pharynx roentgenoscopy.ab-67
Nadoleczny, Max, death....59
Negro sharecroppers, clinical status....*6
tuberculosis in recruits....*43
Nephritis, hypertensive, signs in....78
Nerves, intercostal, alcoholization in rib fracture....ab-73
News....53
Nose drops (oily), lipid pneumonia from....*4
Nurses demand more money, England....58
U. S. government seeks....56
Ophthalmology and otolaryngology, home study courses in....56
Organization Section....49
Ovary cancer, postoperative radiation....ab-67
cyst ("chocolate"), pelvic endometriosis.ab-66
tumors, pubertas praecox from....ab-66
Pancreas tumors (islet cell)....*16
Panegrossi, G., Berne prize to....59
Paper milk containers, paraffining....E-39
Paternity: blood grouping tests....MI-64
Pathologist scrutinizes specialty boards....*1
Pelvis, endometriosis, treatment....ab-66
Peptic Ulcer treatment, smoking affects....77
Peyote....ab-73
Pharmacopeia, U. S., trustees meet....56
Pharynx, roentgenoscopy in myasthenia....ab-67
Physical Examination, list of equipment for of Negro sharecroppers....34
Physicians, American, for Britain....*6
ordered to active duty....E-37
Pilocarpine intoxication (probable)....46
Pneumonia, lipid, differentiating from neoplasm....77
Pneumothorax, spontaneous, from rupture of tuberculous cavities....*4
Population of India increases....ab-73
Postal Regulation on gifts for Britain....58
Pregnancy diagnosis, colostrum skin test..E-38
Prizes, University of Berne....ab-65
Casselberry Award....59
Cleveland Academy distinguished service medal....54
Crawford Long....55
Hickman Medal....53
Prostate surgery, mortality in....53
Prostigmine injection, roentgenoscopy of pharynx before and after....ab-70
Psittacosis in Oak Park....ab-67
Quadruplets, Gehri, 60 year old....53
Queries and Minor Notes....77
Rabies incidence in Switzerland....59
transcutaneal virus infections....E-37
Red Cross, American, doctors for Britain.E-37
medical aid for Britain only through...E-38
Rib fractures, alcoholize intercostal nerves.ab-73
Rickets, vitamin inspired music....E-39
Rigor mortis of fetus....78
Roentgen Ray units for army hospitals....45
Root Lecture....*1
Roussy, Gustav, retired from office....59
Royal College of Surgeons Museum wrecked.57
Society, American Philosophical Society gift to....57
Society of Medicine....53; 57
Searle new laboratories....56
Sharecroppers, Negro, clinical status....*6
Skin diseases, sulfathiazole in....ab-67
permeability to virus infection....E-37
Smallpox outbreak, Mich....54
"Smoke" drinkers, spontaneous hypoglycemia in....*12
Societies, Medical, buys sound movie....E-39
Society Proceedings....64
Specialty boards, pathologist scrutinizes....*1
Standard Oil (N. J.) Medical Service....OS-50
State Board Examinations....63
Steindler, Arthur, portrait....54
Sterility of male after sympathectomies....*20
Streptococcus, hemolytic, in wounds....ab-69
Sulfanilamide ointment, use in eye....ab-66
prescriptive control, Switzerland....59
Sulfathiazole in skin diseases....ab-67
Surgical gown with instrument pockets....*21
Swallowing, roentgenoscopy in dysphagia..ab-67
Sympathectomy, sterility of male after....*20
Terry, R. J., retires; Dr. Cowdry succeeds...54
Thomas, J. J., Cleveland Academy medal to..55
Thrombosis, coronary, role of effort, trauma, work....ab-70
Tobacco smoking, effect on peptic ulcer treatment....77
Tonics and Sedatives....Adv. page 24
Trichinosis, skin and precipitin tests....ab-65
Tuberculosis, pulmonary, artificial pneumothorax, cavities rupture in....ab-73
pulmonary cavities, Monaldi's aspiration.ab-73
pulmonary, sanocrysin in....ab-74
roentgen examination in recruits....*40
Weltmann-Havas reaction, lactogelification test and sedimentation rate in....ab-74
Tumors, lead and other metals in....*20
Typhoid, state hospital quarantined....53
University of Berne prizes....59
Upham, J. H. J., retires; Dr. Kemp succeeds.55
Ureters calculi, lead in....*20
Venereal Disease institute, Puerto Rico....55
Virus infections, transcutaneal....E-37
research laboratory, Mich....54
Vitallium skull plates....*8
Vitamin C in spinal fluid....ab-74
C overcomes arsphenamine intolerance..ab-74
inspired music by Eppert....E-39
K, orally in delayed prothrombin time..ab-71
White, George Starr....E-36
Wildbolz, Hans, death....59
Woman's Auxiliary....52
Wounds, septic infection....ab-69
shock and circulatory collapse....ab-72
Yellow Fever, transcutaneal infections....E-37

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A PATHOLOGIST SCRUTINIZES THE SPECIALTY BOARDS

THE WILLIAM W. ROOT LECTURE OF ALPHA OMEGA ALPHA HONORARY MEDICAL SOCIETY

HOWARD T. KARSNER, M.D.

CLEVELAND

It is commonly said, and with some truth, that the pathologist has the last word as to clinical diagnosis. This is not because he has superior intelligence but simply because he has direct access to the material, in contrast to the clinician, who thumps, feels and listens, looks through long narrow tubes with a tiny light at the end, inspects through a wound with his mind on the welfare of the patient and his thought on the clock, or depends on a photograph of the interior, vague as to definition and subject to various interpretations. The pathologist suffers none of these handicaps. His patient is not breathing, cannot feel pain and is not in danger of shock or exsanguination, his examination can be direct and thorough, and his time is limited only by the fact that he himself may die some time.

The correlation of clinical and postmortem results necessitates the cultivation of a critical mind, kindly, sympathetic, understanding and sound. In spite of many vicissitudes, the pathologist must keep his feet on the ground. If he is broadly interested in medicine, his critical nature is such that he may be of aid. It is for this reason that I have included in the title of this address "a pathologist scrutinizes." I have explained a few things about the pathologist and find that Webster defines "scrutinize" as meaning to "inspect or observe with critical attention." The pathologist spends his life in careful examination, in critical appraisal, in logical deduction and in an endeavor to make what he hopes are helpful suggestions. As a scrutinizer he usually attains a high rating. The scrutiny of the specialty boards at this time is a sort of stock taking with hope of building up, advancing and improving rather than with destructive intent. The pathologist may be cold blooded, but he has a warm heart, is patient and analyzes sympathetically. The boards are good and will be better, but they will do well to proceed with caution, guided by wisdom and not by emotion.

The history of medicine shows a progressive course of change in status of the physician. In the days of Greece and Alexandria he occasionally attained importance in the affairs of men and in some instances was actually deified. During the Middle Ages a few great lights appeared and were honored for their attainments. These were exceptions, and the general level was low. Toward the close of the Middle Ages and in the early Renaissance, physicians as a group took a place in society on the same plane as the artisans and merchants. In various communities, guilds were formed and both physicians and surgeons served an apprenticeship before they became qualified freemen of their respective guilds. Although at about this time universities were established, an interrelationship between the guilds of medicine and the university courses of medicine was not yet formulated. Toward the end of the eighteenth century, certain quasilegal organizations were established, as in the case of the Royal Colleges of England, of Scotland and of Ireland, which became licensing bodies. There was no great regularity of sequence in these events; the development appears now to have been somewhat haphazard.

In the nineteenth century medicine slowly came into its own as a scientific discipline, and naturally schools and universities played a large part in its subsequent progress. Hospitals became an integral part of the teaching facilities. This period represents a development which for the most part was logical, and, as it went on, the apprentice system as the principal mode of training fell into the discard. The Flexner report led finally to the stabilization of medical education.

Prior to that report there were instances in which what was called medical training was loosely organized, conducted without adequate facilities and even prostituted for personal gain. This unfortunate situation led to the establishment of licensing boards designed to protect the public against incompetent graduates. With the advent of a new order following the Flexner report, medical education became a profession in the true sense. It was recognized that the conduct of a department in a medical school is not an avocation, as had previously been the practice, but a vocation in itself regardless of whether it was called full time or designated in some other way. A faculty member is now chosen because of training, promise, achievement and mastery of his field. Possessing these qualifications, the man must be a good guide for his students. With few exceptions the selection of professors is a free choice on the part of faculties, generally unhampered by university politics or nepotism. Freedom of selection, freedom of research, freedom in curriculums, freedom in pedagogic methods all guarantee continued progress in medical education. Examinations conducted by the present school personnel give assurance that those who graduate have been well trained. The licensing boards of the various states, formerly guardians of the public welfare, are now largely watchdogs over the faculties. Nevertheless, certain boards have seen fit to interfere with the freedom of action of medical schools to the extent of imposing certain rigid requirements as to courses and types of internship. This is not the place to discuss the merits of such a program, but some of the rulings savor of

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From the Institute of Pathology, Western Reserve School of Medicine and University Hospitals.

arrogance and can safely be said to be arbitrary. To be sure, these boards are within their legal rights, but they have not the distinction and knowledge in the field of medical education that would justify this exhibition of power. It is to be hoped that the specialty boards will scrupulously avoid similar action.

These remarks might be considered as divergent from our main purpose here. The development of the line of thought concerning the specialty boards needs this introduction. This is because the specialty boards, although in no sense concerned with legal requirements of states or nation, are bodies superposed on those boards which deal with licensure.

GROWTH OF THE SPECIALTY BOARDS

As medicine became more scientific, so it became more complex. Methods of diagnosis and treatment began to require a detailed attention that made it impossible for one person to be fully proficient in all fields. Thus arose specialism with its requirements of great skill in one field but, as a leading specialist has said, "so empty of so much." As experts in a given division increased in numbers, special societies were formed. Out of these grew the specialty boards. As early as 1913 the American Ophthalmological Society, the Section on Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology appointed a committee on education in ophthalmology. This soon led to the problem of differentiation between ability and incompetence. The outcome was the creation in 1916 of the American Board of Ophthalmic Examinations, now known as the American Board of Ophthalmology. The otolaryngologists took similar action in 1924. In 1930 the American Board of Obstetrics and Gynecology, in 1932 that of Dermatology and Syphilology and in 1933 that of Pediatrics were established. During these years the National Board of Medical Examiners, a voluntary group of high minded men, had given extensive consideration to the problem of examinations for the specialties, and the Council on Medical Education of the American Medical Association took final action in establishing the Advisory Board. The earlier boards formed the model, and beginning in 1934 various other boards have been established. It is to be noted that these actions were initiated by medical men themselves. There were no pressure groups in lay organizations and no direction by governmental authority. The cooperation of the Council on Medical Education and Hospitals, various sections of the American Medical Association and numerous national medical societies, each made this program possible. Nothing that I might say could detract from the idealism, the self sacrifice and the practical applications which have become evident as the project has been put into practice.

On April 12 THE JOURNAL stated that on February 16 the Advisory Board had advanced the subsidiary boards of anesthesiology and of plastic surgery to the status of full and independent boards, bringing the total number of boards to fifteen. Since that time, but on a different basis, the American Board of Internal Medicine has appointed advisory committees of medical subspecialties in the fields of allergy, cardiovascular disease, gastroenterology and tuberculosis. It is important that each candidate in these subspecialties who wishes a notation on his certificate must first pass the examinations of the board. Members of the board will sit with the examiners in the subspecialties. This means that however much a candidate may wish to shine in his small field he must first qualify as a competent physician. Thus, what at first glance looks like approval of specialization ad infinitum is not accepted by this board, and there is no immediate danger of realization of the old platitude about different specialists for each tonsil, at least as far as concerns the Board of Internal Medicine. Rumors are circulated, however, as to the desirability of boards for minor specialties, so minor in fact as to be of microcosmic proportions. There is even talk of a board for general practitioners, difficult as it is to define them or to keep them within such boundaries as may be established. The position of the Advisory Board in confronting and deciding these questions is certainly not enviable. It will require wisdom and determination for that board to avoid extremes. Not one of the boards is entitled to expose the profession or its specialties to ridicule.

DANGERS INHERENT IN THE SITUATION

The purposes of the boards are directed toward the elevation of the profession and the improvement of the practice of medicine, more particularly in the various major specialties. This is to be accomplished by requirement of certain terms and actual details of training. The boards are informed as to the training and other qualifications of candidates and, on examination, certify to their competence. Periodically, lists of those so certified are published. So far, so good, but what are the dangers? The boards are entirely voluntary and their activities supported by fees of candidates. There is no subsidy by any organization that might "tie strings" to gifts. This means that the boards are independent except as to certain items of supervision by the Advisory Board and the Council on Medical Education and Hospitals. Admirable as is this independence, it carries with it the hazard of dogmatic decisions and autocratic operation. Certainly the ideals and practical experience of the members of the boards should be a guaranty of wise judgments. The business man cannot understand why medical men take on such burdens as membership in the boards. He is unable to grasp the motives which lead medical men willingly to make the required sacrifice of time and energy without financial recompense or any other reward, as far as I can see, except the satisfaction of a duty well performed. A prerequisite for this service is enthusiasm, an enthusiasm which may reach such emotional heights as to be prejudicial to the very objectives of its ardor. The enthusiast must ever guard against becoming a zealot. The boards should be aware of this danger and avoid setting standards at a level which could be attained only as senility begins to lay its heavy hand on intellect.

Modern medical school education has departed in large measure from the apprentice system. The preceptor is no more. The boards, however, have returned again to the policy of apprenticeship. It is difficult to see how any candidate can procure the required training unless he attaches himself to one or a few distinguished persons in the field. His novitiate over, he passes the examinations and is certified as competent. He becomes a freeman, nominally if not actually, of the same standing as his teacher. The danger lies in the formation of a guild or, in modern terms, a labor union. The members of the boards are representatives of special societies, which these new freemen usually enter. They therefore reflect to some degree the views of the societies. No one could deny these organizations the right to look after the professional, economic and social interests of their members, but if they form pressure

groups they may well defeat themselves. The labor union has no place in the medical profession or any of its divisions, and if the specialty boards were to favor such a development they would do harm rather than good. Witness the decision that only those who hold the certificate of the American Board of Orthopedic Surgery are eligible for appointment in the forwarding of a state program. The result is alleged to be pressure to lower the standards of the board and, it may be said candidly, injustice to those who for one reason or another are not certified even although qualified for the job in hand. This situation is hardly the fault of the board but indicates how its work may be threatened.

Vaguely indicated was at one time the proposal that hospitals accept on their staffs only those certified by the boards. This suggested infringement of the inherent right of a hospital to determine for itself how the staff should be selected was not carried into effect and should not be. The prompt reaction on the part of at least one hospital was the public announcement that it would not adhere to any such edict. If such a program is ever to operate, it must be inaugurated by the hospitals rather than by instruction from the boards.

Admirable is the voluntary character of the boards, and this feature is properly emphasized. The members are voluntary workers. The specialists are free to take the examinations or not, as they choose. There is no clear indication that the boards wish to depart from this plan. They should scrupulously avoid any departure in the future from this voluntary feature and do what they can to discourage pressure in that direction by others. The whole program is so highly meritorious that the weight of its own excellence is sufficient to achieve the desired ends.

SPECIAL TRAINING

The boards have prescribed certain items of training both as to the clinics and as to the basic sciences. The specifications for the clinical work are clearly outlined. Presumably they represent a minimum as concerns time and material. They may perhaps do an injustice to brilliance. It is at least to be suggested that there may be a certain reduction of rigidity in special cases. There is an institutional reluctance to accept responsibility for determination of special cases as illustrated by age limits in universities and the like. If the boards are to favor a degree of elasticity, the members are then confronted with decisions which require no small amount of courage. They have it and should use it.

The requirements in the basic sciences are nowhere clearly specified. The phrase "intensive training" in these fields is used by several boards. This looks well in the booklets, but the candidates and in some instances the board members themselves are at a loss as to its exact meaning. It is of course absurd to think that a trainee in the time at his disposal can have "intensive training" in anatomy, physiology, biochemistry, bacteriology and pathology. This is particularly true if intensiveness has anything to do with extensiveness. Designed for the field of a specialty, it presupposes that the man has carried through the clinical years of his medical school days and the period of his general internship a considerable sum of knowledge of these sciences, which experience shows not to be true. The special features of these sciences can be appreciated only with a good background of the general aspects.

In the practical work of the boards, much emphasis is placed on pathology. In many instances special pathologists, as indicated by some of their publications, are encumbered by deficiencies in knowledge of general pathology. I am convinced that an adequate grasp of the pathology of any special field requires a good background of general pathology. I am also convinced that this should be given due weight in the preparation for the specialty boards. Most of the young persons for whose training I am responsible, including those who are headed for the clinical divisions, accept this view without hesitation. It may not be unjust to indicate that something of this sort is recognized by those boards in whose program the examinations in pathology are conducted by the clinical men. Furthermore, I realize fully that this method may be dictated by uncertainty as to the type of examination that might be given in the special field by the general pathologist.

Certainly the practitioner of a specialty should know the nature of the diseases which affect his patients. Equally, he should be able to recognize the alterations of form and function. The danger lies in the possibility that, when he has had the usual cursory study and has passed the examination, he may consider the incident closed and not realize that it is only preparatory to further study. This danger is much more likely to operate in the basic sciences than in the clinical divisions. I have known excellent clinicians who had a year of pathology five, ten and twenty years ago who carry with them the idea that they know the pathology of today. They are mistaken, because they have not continued with the practice of pathology or followed its literature. This cannot be passed off with the comment that the patients are dead and the implication that the pathologist is essentially the same, for most of the work of the practicing pathologist deals with living patients. He himself is very much alive to the continuing advances in his field. Pathology is no more static than any other branch of medicine, and it cannot be learned in six easy lessons. Its study must continue throughout the physician's life, whether he is clinician or professional pathologist. A member of one of the boards states that he has learned more pathology in the last ten years than he learned in the preceding twenty. Without discourtesy to this distinguished physician, it might be that his membership in the board has stimulated him to keep ahead of the candidates. All that aside, the boards must determine and put in direct simple language their requirement in the basic sciences, and this should be on the basis of what can reasonably be accomplished rather than on an ideal impossible to attain. "Steer then with good strong hand and wary eye, O helmsman."

These particulars are only incidental to a more fundamental thought. It is essential in a practical way to set a certain course of training and to require evidence that it has been followed profitably. It is equally essential to recognize the fact that only a few of the members of the boards have done so themselves. Without exception they are persons of real distinction in their fields. They became so because they sought and worked, they had a plan and followed it. They had an ideal and usually were guided by some one who had achieved a position of importance. By and large, however, they did not follow a program laid down for them by authority. They attained mastery of their specialty by the exercise of initiative. The only limit to their initiative was opportunity, and over and over again, by their own energy, they created opportunity. In a sense they have arrived, but the habits they formed in their earlier days still operate to drive them toward higher levels. These are the people Osler had in mind when, in a discussion of continuous education of general prac-

titioners, he said "the specialist may be trusted to take care of himself." They often think that they might have been better off if they had had greater experience in this or that sphere and forget that in a productive career there is a limit to coverage of all knowledge. And they also forget that their freedom, coupled with the initiative they exhibited, was basic to their advancement. They should prescribe programs of training, but they must still leave such a degree of flexibility that freedom and initiative even if not fully granted will be restricted in the smallest possible degree. Our graduate pupils are our sons in science and for the time being we are in loco parentis. We may guide our pupils but we must not drive them. By precept and example we can set a goal for them. We must not forget that they are individuals and that their success lies within them. They do their best without too tight a rein.

Let nothing I have said be construed as adverse criticism, for such is not the case. Those who conceived the boards, those who constitute and operate them are unselfishly striving for the improvement of a truly great profession. They have been actuated by the highest ideals and have proved wise in their decisions. As with all men of enthusiasm and imagination, they have occasionally "talked out of school," but their fervor has not led them astray. They have welcomed constructive suggestions as to their technics of procedure. Their heads have been held high and their feet solidly on the ground. They must, however, be constantly on guard that their authority is not transmuted into autocracy. "The letter killeth, but the spirit giveth life."

DIFFERENTIAL DIAGNOSIS BETWEEN LIPID PNEUMONIA AND PULMONARY NEOPLASM

REPORT OF A CASE: TREATMENT BY PARTIAL LOBECTOMY

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The possible similarity of lipid pneumonia to pulmonary neoplasms from the roentgenologic and clinical aspects has been mentioned in publications describing the production of acute and chronic pulmonary lesions by lipids in infants, children and adults.[1] The clinical and pathologic features of lipid pneumonia in infancy and childhood have gained widespread recognition, but the lesions that occur in adults are extremely variable and have not been so well defined. The case to follow, of localized lipid pneumonia simulating a pulmonary neoplasm in an adult, is the first recorded instance of a surgical cure of this condition.,

The surgical therapy came about by chance, and it seems to us, in retrospect, that the diagnosis of lipid pneumonia could possibly have been made earlier in the case reported herewith. A complete preliminary study suggested a malignant condition of the lungs to be the most likely diagnosis. Operative intervention with lobectomy in view was therefore undertaken. When the pulmonary tissue was seen and felt it did not have the gross appearance of a tumor, so a biopsy was immediately done. The resulting conclusions were totally against the existence of a malignant growth and in favor of an inflammatory process highly suggestive of reactions to lipids. Since no mediastinal nodes were seen a partial lobectomy was performed. The ultimate essential cure of the patient ensued, and the final pathologic diagnosis was lipid pneumonia.

The differential diagnosis involved and the unusual procedure undertaken make us consider the report of this case and the accompanying discussion to be of interest.

From the Departments of Thoracic Surgery and Pathology, Mount Zion Hospital, Harold Brunn, M.D., Chief of Staff.

1. Goodwin, T. C.: Lipoid Cell Pneumonia, Am. J. Dis. Child. **48:** 309 (Aug.) 1934. Fischer-Wasels, B.: Tödliche Lungenschrumpfung durch Gebrauch von Mentholöol, Frankfurt. Ztschr. f. Path. **44:** 412, 1933. Houck, G. H., in Medical Papers Dedicated to Henry Asbury Christian, Baltimore, 1936, p. 463. Klinck, G. A., Jr.: Lipoid Pneumonia, Albany M. Ann. **55:** 71 (June) 1936. Graff.[3] Ikeda.[5]

REPORT OF CASE

History.—J. B., a Jewish man aged 48, entered Mount Zion Hospital Nov. 13, 1939 in the private service of Dr. George Herzog, with lung trouble of nine years' duration.

An attack of pneumonia in 1930, while he was in a cast under treatment for pain in the lower part of the back, was followed for several months by cough and the expectoration of sputum in the mornings. These disappeared and he was free of symptoms until 1932. At this time, and again in 1934, he had episodes of fever and a dry, hacking cough. After the last attack he had many "colds," a constant cough with sputum and some shortness of breath. There were no hemoptysis, chills or sweats. He had not checked himself for daily changes in temperature. In the past year he had begun to have nocturnal sweats, which for the past two months had occurred nightly. A "cold" in the past two days had increased the amount of sputum, and for the first time it was blood streaked. He admitted having used large amounts of oily nose drops for many years.

His mother and one brother died of "asthma," and two brothers and one sister have asthmatic symptoms.

His antrums had been irrigated every few months, and he had had nasal polyps removed, a submucous resection and a hemorrhoidectomy. An attack of rheumatism involved both wrists, the right knee and the left ankle in 1925.

Examination.—The patient was thin, bald, anemic appearing and cooperative. There was a nasal polyp in the right naris, and the nasal septum was perforated. No teeth were present. The thorax was symmetrical, but on respiration the left costal margin lagged. Dulness on percussion was present only over the lower part of the left side of the chest posteriorly. In this region there were many fine, moist rales, the breath sounds were diminished in intensity and the respiratory note was prolonged. A short, harsh, systolic murmur was present over the mitral area. No masses or organs were palpable in the abdomen. No other significant physical abnormalities were present.

The blood showed leukocytes 10,350, with a normal differential count, erythrocytes 4,390,000 and hemoglobin 88 per cent (Sahli). The urine was normal. The Wassermann and Kahn reactions of the blood were negative. Tubercle bacilli could not be found in the sputum on several direct examinations, and inoculation in the guinea pig gave negative results. The electrocardiographic tracing showed a normal rhythm with a tendency to a deviation of the right axis and a slight depression of the ST complex in leads 2 and 3. The conclusion was that there was no positive evidence of myocardial damage.

A roentgenographic examination of the chest revealed an area of density at the base of the upper lobe of the left lung extending anteriorly. This was interpreted as probably either a pneumonic process or a partial stenosis of a bronchus by a neoplasm (fig. 1).

The patient remained in the hospital for eight days, during which time he had several nocturnal sweats but no fever. The sputum remained blood tinged but had decreased in amount. The physical condition of the chest did not change. He was discharged unimproved and referred to the thoracic clinic of the University of California outpatient department for follow-up examinations.

A bronchoscopic examination was performed by one of us (A. L. B.) on December 5, in this clinic. The trachea and primary bronchi appeared slightly reddened; excess secretion

came from the bronchus of the lower lobe of the right lung and the bronchi of both lobes of the left lung. Beginning at the carina and including the left primary bronchus and its bifurcation, the tissues were edematous, thickened and slightly more firm in consistency than was normal. This thickening narrowed the lumen of the bronchus of the upper lobe of the left lung by one fourth of its diameter. A specimen of this

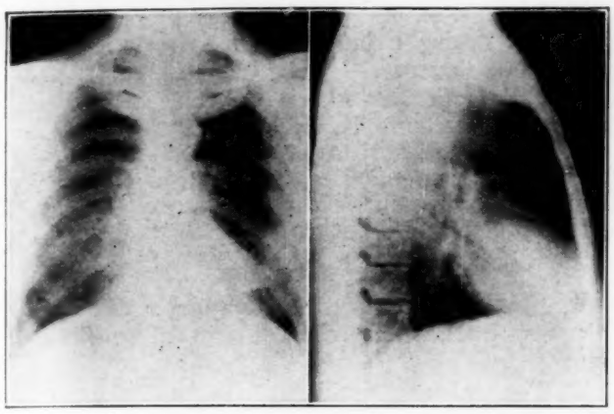

Fig. 1.—Anteroposterior and lateral views of the chest on Nov. 27, 1939, showing fairly discrete areas of increased density of the lingula of the upper lobe of the left lung with some pneumonitis in the right pulmonic field.

mucous membrane was taken for biopsy. No displacement or distortion of the bronchi was noted.

Pathologic examination showed the bits of tissue to be covered by respiratory epithelium and to contain scattered lymphocytes and small mononuclear cells in the subepithelial fibrous stroma. There was no evidence of a malignant growth.

The patient reentered Mount Zion Hospital on December 9 and stated that the cough and sputum had decreased but that a postnasal drip had become more profuse. The nocturnal sweats had continued, but with less regularity; slight dyspnea on exertion had become evident, but no hemoptysis or blood-streaked sputum had been noted. An intermittent feeling of pressure unrelated to exertion had appeared in the left portion of the chest at the level of the nipple line. Examination of the chest revealed the same condition noted in the first entry. The vital capacity was 4,000 cc. No significant changes from the conditions originally noted in the laboratory had occurred.

Comment.—At this point in the study of the patient it was felt that we were dealing with a man who had had numerous respiratory illnesses, who was becoming progressively more incapacitated and in whom a suggestion of a pulmonary malignant growth appeared to be a definite possibility. This opinion was based on (1) the presence of blood in the sputum, (2) the localized lesions noted by means of roentgenograms, (3) the progressive downhill course of the patient, (4) the inconclusive bronchoscopic examination and biopsy done on material taken with a bronchoscope and (5) the other examinations giving negative results, in particular those for specific pulmonary inflammatory diseases. It must be admitted that insufficient consideration was paid to the history of the use of oily nasal sprays over a period of nine years, although this alone would not have deterred us from our subsequent course. Exploratory thoracotomy, with the possibility of lobectomy for a malignant growth of the lung, was therefore undertaken.

Operation.—December 14, after a preoperative diagnosis of questionable tumor of the lung, exploration of the chest and partial lobectomy were done; avertin with amylene hydrate and cyclopropane being used as an anesthesia. After the patient was supported on his right side with sandbags, an intratracheal tube was inserted. The anterior, lateral and posterior portions of the left side of the chest were prepared with merthiolate and draped in the usual manner. The skin was incised in the sixth interspace on the left side, the incision extending from the lateral third of the posterior part of the left side of the chest to the lateral third of the anterior part of the left side of the chest. The incision was developed through the subcutaneous fascia and intercostal muscle. Bleeders were clamped as they were encountered and tied with no. 000 catgut. The parietal pleura was then exposed and incised. In order to enlarge the operative field, about 4 cm. of the sixth and seventh ribs at the posterior portion of the incision were excised and a self-retaining retractor was placed in the wound. The lingula of the upper lobe of the left lung was brought into view, and two indurated areas were palpated in its dependent portion. The rest of the lobe was explored, but no abnormalities were found. No unusual mediastinal nodes were distinguished.

The lowest third of the lingula was clamped and tied with continuous and interrupted chromic catgut, and the distal portion was excised. The visceral pleura was approximated over the cut surfaces of the lung with chromic catgut. The lung was inflated, but the lobe on which operation had been done did not expand fully, remaining somewhat collapsed. There was no bleeding from the operative site of this lobe, and no escaping air was detected when saline solution was poured over the lobe. The wound was closed by approximating the sixth and seventh ribs with interrupted chromic catgut. The intercostal muscles and fascia were approximated in the same manner. The superficial fascia was closed in the usual manner with continuous no. 00 catgut and the skin with Michel clips. A sterile bandage was applied.

A bronchoscope was then passed, and a small amount of mucous material was aspirated. No mucous plug was removed. The patient was returned to the ward in good condition.

Pathologic Examination.—The specimen consisted of a pyramidal shaped lobule of lung measuring 11 by 9 by 4 cm. The pleura was irregularly thickened in some regions. There were no adhesions. The tissue was irregularly firm in consistency, with some soft areas. On section the parenchyma in the firm regions did not contain air and appeared atelectatic and somewhat indurated, but the only grossly visible fibrous tissue appeared as fine scattered strands. Other regions showed the tissue to be relatively normal but atelectatic.

Microscopic Examination: Numerous blocks from all parts of the lobe were fixed in Zenker's solution and 10 per cent solution of formaldehyde, embedded in paraffin and stained with hematoxylin and eosin. Frozen sections were stained with scarlet red and osmic acid. The alveoli varied considerably in structure and content in different portions of the lobe; in some areas they were normal. In most regions the alveoli contained distinct globular spaces surrounded by a fine fibrous stroma. Adjacent regions often showed moderate atelectasis, and the partially collapsed alveoli were filled with fat globules, fibrous tissue and macrophages containing fat and hemosiderin. Some of the alveolar walls were thickened by an irregular layer of fibrous tissue embedding smaller globular spaces. Occasional,

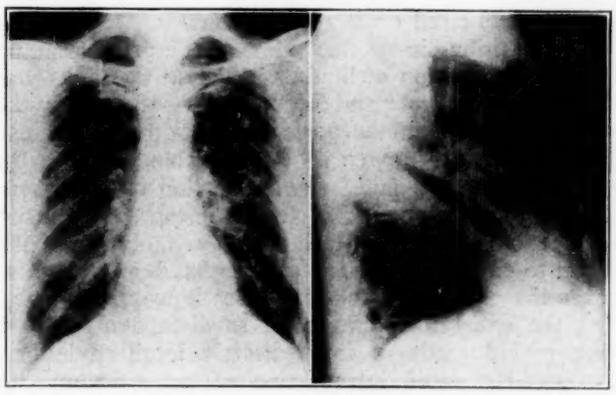

Fig. 2.—Anteroposterior and lateral views of the chest on March 20, 1940, three months after operation, showing complete expansion of a clear field of the left lung with considerable clearing in the field of the right lung.

scattered alveoli were completely filled by whorl-like bundles of fibrous tissue. The interlobular, peribronchial and perivascular connective tissues were thickened by irregular strands of scar tissue and contained focal collections of lymphocytes. Some bronchi were definitely enlarged, with lymphocytes and small mononuclear cells scattered throughout the increased fibrous tissue of the subepithelial and muscular layers.

The globular spaces in the alveoli and in the macrophages noted in the paraffin sections were deeply stained by scarlet red on frozen section. Fine droplets of fat were brought out by this method in the bronchial epithelial cells. Droplets of fat were present also in some of the whorl-like bundles of scar tissue filling some of the alveoli and in the fibrous tissue thickening some alveolar walls. These droplets of fat were not stained by osmic acid, indicating that this was a saturated lipid, probably liquid petrolatum. An iron stain showed the presence of hemosiderin in macrophages in some parts of the lung. The pathologic diagnosis was chronic lipid pneumonia.

Subsequent Course.—The immediate postoperative period was uneventful, and the patient was discharged from the hospital on the twenty-second postoperative day. He regained his strength, gained 6 pounds (2.7 Kg.) and six weeks after the operation returned to his usual full time occupation. In the eighteen succeeding months he has had no recurrence of any pulmonary complaints or colds and has discontinued the use of oily nasal sprays. Roentgenographic examinations in this period showed that almost all the involved portion of the upper lobe of the left lung had been removed, the remaining scarred areas slowly disappeared and the pulmonic fields became normal (fig. 2). A recent physical examination of the chest revealed no abnormalities.

COMMENT

The histologic differentiation between the effects of aspirated animal, vegetable and mineral lipids in the lung has been carefully and minutely described by several observers. The neutral vegetable oils have been shown by Pinkerton [2] to be practically innocuous. The animal oils cause a reaction as to a foreign body, with the elicitation of macrophages and giant cells; fibrosis is not a conspicuous feature. Liquid petrolatum in adults generally produces scattered granulomatous nodules associated with foamy macrophages.

Graef [3] correlated the histologic reaction with the chemical nature of the extracted lipids. He described the histologic characteristics of the acid-fast membrane formed from aspirated cod liver oil, and in 2 instances confirmed the interpretation by chemical extraction. He showed that liquid petrolatum can be differentiated from the animal oils in the tissues by the absence of the acid-fast membrane and the inability of the former to become blackened with osmic acid. In 5 instances the presence of liquid petrolatum was proved by chemical extraction of pulmonary tissues in which it was considered implicated on histologic grounds.

The distribution of the pulmonary lesions resulting from the aspiration of liquid petrolatum by adults was described by Bromer and Wolman [4] as occurring in the perihilar region, in the posterior portion of the lungs and to a greater degree in the right lung than in the left. Others have noted the localization of the lesions in only a part of one lobe.[5] In this instance clinical and roentgenologic evidence pointed to a limitation of the lesion to one lobe. No explanation has been offered to cover the variations seen in adults; it may be possible that the constant aspiration of small amounts over a long period tends to form discrete localized lesions, whereas the rapid introduction of large amounts of liquid petrolatum produces a diffuse and extensive lesion.

The histologic changes in lipid pneumonia are essentially clearcut and specific, so that biopsy done on material taken with a bronchoscope from the neighborhood of the lesion may give the diagnosis. We reviewed the microscopic preparations of the material obtained during the bronchoscopic examination with this in mind, but no characteristic cells were found. However, it may be possible in some instances to recognize this condition during a biopsy done on material secured with a bronchoscope.

In this particular instance the value of performing a partial lobectomy is well illustrated. There was saved to the patient a major portion of the upper lobe of the left lung. Subsequent roentgen examinations have shown a gradual clearing of the scarred area, so that at present the pulmonic field is essentially clear.

SUMMARY AND CONCLUSION

1. In a case of localized lipid pneumonia the working diagnosis had been a probable malignant growth of the lungs.

2. The occasional similiarity between lipid pneumonia and pulmonary malignant growths is noteworthy.

3. The possibility of lipid pneumonia must always be considered when an unconfirmed diagnosis of a malignant pulmonary growth is entertained.

4. It is important to question the patient specifically concerning the use of oily nasal sprays or other oil-containing remedies in the presence of unusual pulmonary lesions.

5. Bronchoscopic biopsy has a possible diagnostic value in the diagnosis of lipid pneumonia.

6. Partial lobectomy has a conservative value in instances of localized lipid pneumonia.

490 Post Street.

2. Pinkerton, Henry: Fats and Oils: Their Entrance Into and Fate in Lungs of Infants and Children; Clinical and Pathologic Report, Am. J. Dis. Child. **33**: 259 (Feb.) 1927; Reaction to Oils and Fats in Lung, Arch. Path. **5**: 380 (March) 1928.

3. Graef, Irving: Pulmonary Changes Due to the Aspiration of Lipids and Mineral Oil, Am. J. Path. **11**: 862 (Sept.) 1935; Studies in Lipid Pneumonia: Lipid Pneumonia Due to Cod Liver Oil: Lipid Pneumonia Due to Liquid Petrolatum, Arch. Path. **28**: 613 (Nov.) 1939.

4. Bromer, R. S., and Wolman, I. J.: Lipoid Pneumonia in Infants and Children, Radiology **32**: 1 (Jan.) 1939.

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THE CLINICAL STATUS OF A GROUP OF NEGRO SHARECROPPERS

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BOSTON

Dill and his associates [1] have submitted for publication physiologic studies of a group of Negro sharecroppers; this paper is written primarily as a clinical appendix to those reports. The persons studied were selected by Dr. I. I. Pogue, the resident physician retained by the Delta and Pine Land Company on its plantation located at Scott, Miss. Aside from restricting the group to male Negroes within certain age limits (17 to 24) living on this plantation, the selection was made at random among the sharecropper families. A family and personal history was obtained from each subject and a routine clinical examination performed. All negative observations are omitted from this report, and the positive ones are compared with data obtained on a group of Harvard students by Dr. Clark Heath. The exacting criteria required to be met for admission into Dr. Heath's series render these persons well above the average from a medical point of view, and therefore they represent more nearly an "ideal white standard" than a control group. Most of the comparative data are contained in the accompanying table.

From the Fatigue Laboratory, Morgan Hall, Harvard University.

1. Dill, D. B.: Fatigue Studies Among Mississippi Sharecroppers, Harvard Alumni Bull., Oct. 20, 1939. Dill, Wilson, Hall and Robinson.[2] Forbes, Johnson and Consolazio.[3] Forbes, Dill and Hall.[4] Robinson, Dill, Harmon, Hall and Wilson.[5]

In addition to what is mentioned in the table, the following conditions were found on physical examination of the Negroes. The commonest disorder was severe pyorrhea; in 50 per cent of the subjects, in spite of the excellent appearance of the teeth, purulent matter could be pressed out easily from the gingival margins, which bled readily on slight pressure. In spite of this continuous source of infection, the subjects rarely gave a history of sore throat, and the low incidence of tonsillectomy requires no further comment. Individual abnormalities observed were as follows: One subject (W. B.), a house servant, complained of inordinate fatigue. He had a generalized annular eruption of the skin, the edge of his liver was palpable 2 inches (5 cm.) below the costal margin, and in addition to his poor physique the tarsal arches on both sides were completely collapsed; he was the only poor specimen in the group and the only one who did housework in preference to work in the field. The Kahn reaction was positive; he was the only person with previously undiscovered syphilis in this group. Only 1 other patient with syphilis (R. B.) was seen; he had been undergoing treatment for some time. Another subject (C. A.) complained of nocturnal enuresis until his fourteenth year, of severe periodic headaches and of occasional seizures. There was 1 albino (J. S.) who presented signs of early pellagra. The right apical region of 1 subject (M. B.) was dull on percussion, with diminished breath sounds, but no rales could be heard. The same region of another (C. F.) was definitely hyporesonant on percussion, and vocal resonance was increased, but there were no accompanying breath sounds. In the complete absence of all other manifestations of pulmonary pathologic conditions, no significance was attached to these symptoms. The apical beat of 1 subject (A. G.) was well outside the midclavicular line; it was a systolic retracting beat accompanied by a rough systolic murmur heard best at the apex but audible over the entire precordium; on roentgenologic examination this subject's heart was found to be of normal size. Three subjects (G. B., A. P. and B. C.) had had symptoms highly suggestive of gonococcic arthritis, the first 2 having been hospitalized with this as a diagnosis. Lastly, the right forearm of 1 subject (J. A.) had been amputated as the result of trauma.

COMMENT

In view of the manner of selection and the information gathered from physicians in the district, it is probably quite safe to say that these subjects fairly represent young adult Negro sharecroppers on a well ordered plantation. The facts that Negroes come from afar seeking houses on the plantation of the Delta and Pine Land Company and that their houses, once secured, are not often vacated voluntarily indicate that the sharecroppers' lot is more favorable here than on some other plantations. Under conditions existing on the Delta and Pine Land Company's plantation the sharecropper does not compare unfavorably in physical status with a person of the same age who has enjoyed most hygienic advantages of the present day.

As may be seen from the table, two thirds of the experimental subjects were born during the summer months. This majority is in all probability the result of a greater number of conceptions occurring during the winter months and a lower infant mortality during the summer months. It is noteworthy that the mortality of siblings is five times that of the white group, although the Negro has twice the number of living siblings. That the expected longevity is roughly the same in the two groups is suggested by the approximately equal number of living grandparents. The difference in the number of childhood diseases suffered by persons of the two groups is striking; in part, the explanation lies in the greater early mortality in the Negro families, allowing only those most resistant to reach a more mature age. Unquestionably it would require a much larger series in order to establish some of these points on a statistically acceptable basis. They are recorded here only as suggestive and interesting data. Some doubt, however, is certainly cast on the prevalent notion that Negro sharecroppers are apt to be in a lamentable state of ill health.

The laboratory observations which have a bearing on the physical status of the Negroes are as follows: The hemoglobin content of the blood is roughly 8 per cent lower than that in white persons; this difference was found between the white laboratory staff and sharecroppers on the one hand and Negro students and sharecroppers on the other.[2] Furthermore, the total white cell count of the Negro was remarkably low, with a greater diminution in the number of polymorphonuclears than in that of other cells.[3] Though having no obvious medical significance, it is a curious fact that the volume of interstitial fluid when referred to surface area averaged about one fourth higher in the Negro sharecropper than in the white subject.[4] For a complete account of the comparative physiologic ability of the Negro and the white to do work, the reader is referred to the paper of Robinson and his associates,[5] in which a number of interesting comparisons are drawn between these two groups during moderate and severe exertion. They found in part that the Negro between 14 and 19 years of age had greater endurance than the white subject in the performance of severe work and was at least as capable as the white in all age groups studied in the execution of both moderate and severe work.

Comparison of White Persons and Negroes

	White	Negro
Number of subjects	20	24
Average age, years	20	20
Average height, cm.	183	175
Average weight, Kg.	69.7	63.2
History:		
Birth month, 4th to 8th, percentage	26	74
Childhood diseases, average number per subject	4	0.4
Hospitalization		
Percentage of subjects hospitalized	20	50
Total number of hospitalizations	4	15
Tonsillectomy, percentage of subjects	50	4
Commonest diseases		
Malaria, percentage of subjects	0	71
Average age	..	14
Gonorrhea, percentage of subjects	0	63
Average age	..	18
Wassermann reaction positive, percentage of subjects	0	8
Family:		
Siblings living, average number per subject	2	4
Siblings dead, average number per subject	0.2	1
Father living, percentage of subjects	100	80
Mother living, percentage of subjects	95	70
Grandparents, percentage living	29	21
Grandparents, percentage unknown	0	17

2. Dill, D. B.; Wilson, J. W.; Hall, F. G., and Robinson, Sid: Properties of the Blood of Negroes and Whites in Relation to Climate and Season, J. Biol. Chem. **136:** 449, 1940.

3. Forbes, W. H.; Johnson, R. E., and Consolazio, F.: Leukopenia in Negro Workmen, Am. J. M. Sc. **201:** 407 (March) 1941.

4. Forbes, W. H.; Dill, D. B., and Hall, F. G.: The Effect of Climate upon the Volumes of Blood and of Tissue Fluid in Man, Am. J. Physiol. **130:** 739, 1940.

5. Robinson, Sid; Dill, D. B.; Harmon, P. M.; Hall, F. G., and Wilson, J. W.: Adaptations to Exercise of Negro and White Sharecroppers in Comparison with Northern Whites, Human Biol. **13:** 139, 1941.

Curiously enough, they also found that the Negro cannot supply oxygen to the tissues at as great a rate as the white person during severe work; hence, in surpassing the performance of the white workers he builds up a greater oxygen debt. It may be seen, therefore, that these laboratory data support the clinical impression noted previously.

CONCLUSIONS

1. The Negro sharecroppers who have been the source for this report were all, with one exception (W. B.), in good general physical condition.

2. It is believed that this group does not differ significantly from the majority of Negroes working on first rate plantations.

3. The physical status, apart from gonococcic infections, of the plantation Negro is, at least in certain areas, not far below the standard of excellence in a white group.

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VITALLIUM SKULL PLATES

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Defects of cranial bone are not uncommon. All sorts of materials have been used in attempts to close these defects during the past four centuries. Animal bone,[1] celluloid,[2] aluminum,[3] gold,[4] silver,[5] platinum,[6] autogenic [7] and heterogenic [7] bone grafts, cartilage,[8] sliding grafts of cranial bone,[9] decalcified bone,[10] buttons of bone [11] and chips of bone [12] have been used.

There has been a great variation of opinion concerning the use of these materials. Most of the materials caused a reaction as to a foreign body and sloughed out or had to be removed. This is particularly true of all the materials except autogenic bone grafts. Because of this reaction all operations involving metal plates had been discarded. Grant and Norcross [13] have made an exhaustive search of the literature on this subject and have described all the known methods of cranioplasty with the use of these various materials. Some 1,385 cases were charted in this survey to try to determine the best method. "The only figure from the entire group that is at all significant is the mortality rate, which is 0.73 per cent." The reader can get the complete history and the technic of the various procedures by referring to their paper.

The theoretic requirements of a skull plate should be (1) rigidity equal to that of the bone that it replaces, (2) absence of reaction between the bodily tissue and the metal plate, (3) immobility of the plate once it is inserted and (4) ease of insertion at operation.

TYPES OF SKULL PLATES USED

Metal Plates.—The first metal plate to be used was made of aluminum and was inserted by Booth and Curtis [14] in 1893. The patient died ten days after the operation. Gold, silver and platinum have been inserted into cranial defects. Silver plates 96 per cent chemically pure produce little or no reaction in bone.[15] However, at the end of three or four years there is some reaction on account of the 4 or 5 per cent of impurities.[15] Silver of this purity is so soft that it does not have the necessary rigidity for protection. Gold and platinum have been tried, but there are no electrolytic studies available on these metals when used in vivo. Grant and Norcross [13] have not considered metal plates in their discussion on the comparison of methods of cranioplasty. Metal plates have not been successful up to the present time, and the method has been discarded.

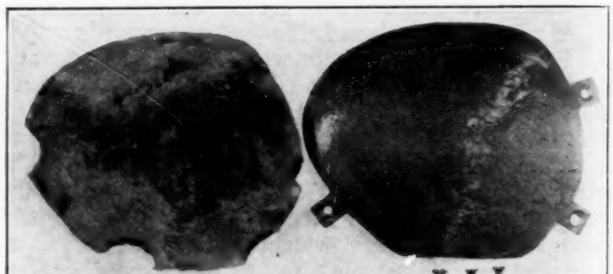

Fig. 1 (case 1).—Outer surface of osseous flap and vitallium plate. Countersunk lugs and flat-headed screws are shown half actual size.

Celluloid.—Grant and Norcross,[13] Mixter,[16] Pringle [17] and Henschen [18] have objected to the use of celluloid because it is not rigid and because the graft has softened and become ineffective.[18] I have examined several patients on whom it has been used. The plates crackle and buckle on palpation, which is a decidedly unpleasant sensation, and they are not strong enough to give protection against pressure.

Cartilage.—This is well tolerated and rarely absorbs, but it is never rigid.[8] A small defect may be covered satisfactorily with it.

Autogenic Bone Grafts.—The method of choice for small defects under 6 by 6 cm. is a pericranial graft.[13]

Austenal Laboratories, Inc., 34 West Thirty-Third Street, New York, furnished the vitallium plates used in the cases described.

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3. Elsberg, C. A.: Plate for Defects of the Skull, Ann. Surg. **47:** 795, 1908. Borchard: Zur subaponeurotischen Deckung von Schädeldefecten nach von Hacker-Durante, Arch. f. klin. Chir. **80:** 642, 1906.
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5. Little, A. D.: An Operation Unique, Having Been Performed But Once (Removal of Silver Plate from Cranium), J. M. A. Georgia **8:** 79, 1918. Mitchell, A. B.: Repair of Injuries to the Skull by Perforated Plates, Brit. J. Surg. **5:** 40, 1917. Rawlings, L. B.: The Surgery of the Skull and Brain, London, H. Frowde, 1912, p. 198.
6. Corniolly, C.: A propos de la cranioplastie, Rev. méd. de la Suisse Rom. **49:** 677, 1929.
7. Seydel: Eine neue Methode, grosse Knochendefekten des Schädels zu Deckung, Zentralbl. f. Chir. **16:** 209, 1889.
8. Bégouin, P.: Cranioplasties: Résultats éloignés, Bull. et mém. Soc. de méd. et chir. de Bordeaux (1920), 1921, p. 88. Chutro, P.: Résultats de la cranioplastie, Bull. et mém. Soc. de chir. de Paris **43:** 481, 1917.
9. Müller, W.: Zur Frage der temporären Schädelresektion an Stelle der Trepanation, Zentralbl. f. Chir. **17:** 65, 1890. König, F.: Der knöcherne Ersatz grosser Schädeldefekte, ibid. **17:** 497, 1890. Bunge: Ueber die Bedeutung traumatischer Schädeldefekte an deren Deckung, Arch. f. klin. Chir. **128:** 441, 1903.
10. Kummell: Ueber Knochernimplantation, Deutsche. med. Wchnschr. **17:** 389, 1891.
11. Burrel, H. L.: The Reimplantation of a Trephine Button of Bone, Boston M. & S. J. **118:** 313, 1888. Guerix, M. A.: Reimplantation des rondelles osseuses après la trépanation, Bull. Acad. de méd. **20:** 604, 1888.
12. Macewen, W.: On the Surgery of the Brain and Spinal Cord, M. News, Philadelphia **53:** 169, 1888. Keen, W. W.: Filling Defects of the Skull by Bone Chips from the Outer Table of the Neighboring Bone, Ann. Surg. **42:** 296, 1905.
13. Grant, F. C., and Norcross, N. C.: Repair of Cranial Defects by Cranioplasty, Ann. Surg. **110:** 488, 1939.
14. Booth, J. A., and Curtis, B. F.: Report of a Case of Tumor of the Left Frontal Lobe, Ann. Surg. **17:** 127, 1899.
15. Venable, C.: Osteosynthesis in the Presence of Metal: Studies on Electrolysis, South. M. J. **31:** 501, 1938.
16. Mixter, W. J., in discussion on Grant and Norcross.[13]
17. Pringle, J. H.: Remarks on the Closure of Gaps in the Skull, Brit. M. J. **1:** 246, 1906.
18. Henschen, cited by Drevermann, P.: Ueber den Ersatz von Dura- und Schädeldefekten, Beitr. z. klin. Chir. **127:** 674, 1922.

Naffziger [19] said that he was disappointed in having the graft absorbed in a larger percentage of cases than Grant and Norcross had had. He also brought up the objection to extensive removal of bone from the skull with a chisel because of the necessity for the use of the hammer and the jarring that it produces. This operation requires further incisions of the scalp, the removal of more of the skull and other procedures which mean a prolonged, complicated operation. Split ribs can be used with good results in larger defects.[13] Again, there are secondary incisions with a prolonged operative procedure. Absorption may take place. Great care has to be taken by the patient to protect his head for some months after operation.

Fig. 2 (case 1).—Inner surface of flap and plate. The surface of the vitallium plate is polished. There is no need to polish either surface.

I attended the meeting of the Texas Surgical Society when Drs. Venable and Stuck presented their original paper on the use of vitallium in bone-plating operations. Since that time these authors have published a number of papers on the use of vitallium in bone surgery. They have shown that corrosion of metal plates and screws is due to electrolysis occurring between the metals used and the tissues of the body. After using all sorts of pure metals as well as alloys of metals, they came to the following conclusions:[20] There are two electrically neutral metals which can be used in vivo. The one metal is silver 96 per cent chemically pure and the other is an alloy of cobalt, chromium and nickel (vitallium). Silver of this purity is not adaptable as far as rigidity and tensile strength are concerned. Vitallium has tremendous tensile strength and can be used effectively. The transplantation of vitallium into the body over bony surfaces and into bony surfaces produces no reaction of the bodily tissue, with the result that there is no corrosion and no atrophy of the surrounding tissue. Hopkins and Zuck [21] reported the first use of a vitallium cup (a large surface-covering piece of the alloy) in arthroplasty of the hip with apparently the same good results as Venable and Stuck had had with their plates and screws.

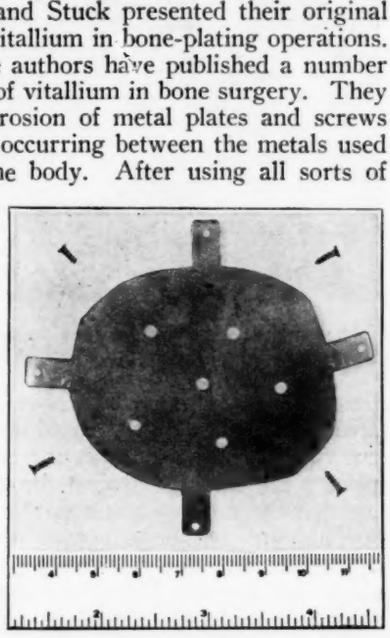

Fig. 3 (case 2).—Perforations, longer lugs and flat-headed screws in the vitallium plate. As this view is of the inner surface, the countersunk surface of the lugs does not show.

I thought that if there was no reaction to vitallium, such as these authors described, then it would be possible to use this metal to repair defects of cranial bone and that this metal would satisfy all the theoretical requirements of an inserted skull plate. It would be further advantageous over the autogenic bone grafts in that the operative difficulties and the time would be tremendously reduced. Once the vitallium plate had been inserted and the wound had healed over there would be no need of protection as far as the operative area was concerned. A vitallium plate could be inserted into the defect and then screwed tightly to the surrounding skull by the use of screws made of the same metal. One question arose, however, and that was whether or not vitallium could be transplanted into the body under a superficial surface such as the scalp. In all other bone-plating operations the plates have been covered over by muscle, and in Hopkins' case, in which a large piece of metal was used, the vitallium hip cup was deep as far as the surface of the body was concerned. It seems to me that if vitallium is inert in the body it would not make much difference how superficial it is to the surface of the body as long as it is covered by bodily tissue.

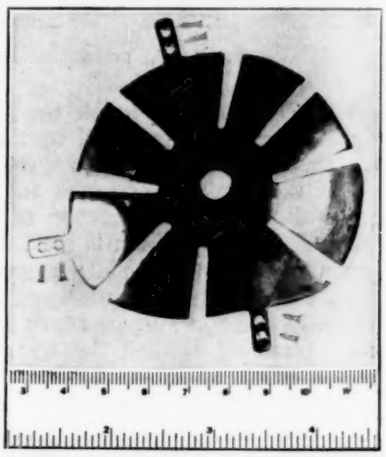

Fig. 4 (case 3).—Slots in vitallium plate.

The first vitallium plate used was cast from an impression of the piece of skull which had been removed (figs. 1 and 2). This presented no difficulties as far as the size of the plate to be used was concerned. The vitallium plates used in cases 2 and 3 had to be designed for contour because there was no original section of the skull from which to cast the plates. The first plate was approximately $\frac{3}{16}$ inch (0.5 cm.) thick, and the lugs were about $\frac{1}{4}$ inch (0.6 cm.) long. It will be noticed in the illustrations that the lugs have countersunk openings and the screws are flat headed so as to prevent any projection over the contour of the plate itself. I failed to remember that some atrophy occurs around the defect of the skull after the original operation, so that the lugs were barely long enough to cover the surrounding bone in order for me to insert the vitallium screws. The second plate (fig. 3) had longer lugs, and there was no difficulty about this part of the second operation. The plate was much thinner, about $\frac{1}{8}$ inch (0.3 cm.) in thickness. Furthermore, I had some holes drilled through the plate itself. These holes were to allow the escape of fluids beneath the plate, which, however, I think is negligible because the skull plate never fits snugly at the periphery. In fact, there

19. Naffziger, H. C., in discussion on Grant and Norcross.[13]
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21. Hopkins, H. H., and Zuck, F. N.: Arthroplasty of Hip, with Use of Vitallium Cup, M. Bull. Vet. Admin. **15**: 1, 1938.

is no need for the plate to fit snugly except for the lugs to cover the surrounding bone. I thought of putting a silk suture or two into the dura, passing the sutures through the openings and suturing it to the overlying galea, to eradicate dead space beneath the plate. How-

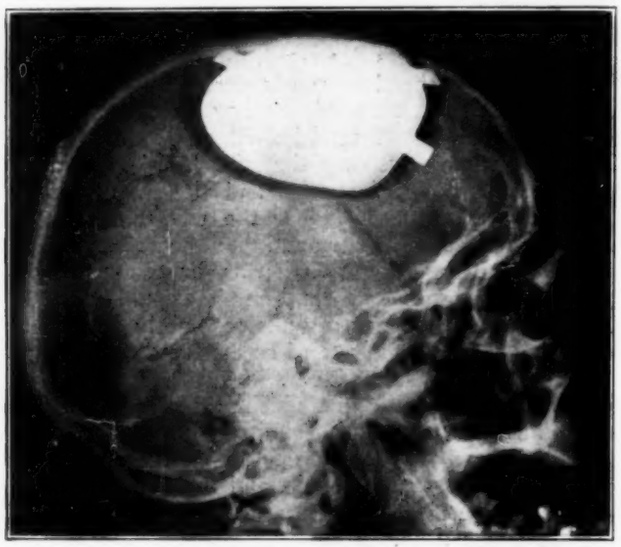

Fig. 5 (case 1).—Vitallium plate in place.

ever, I did not need to use the silk sutures because the dead space was eliminated by the intracranial contents pushing the dura flush against the inside of the plate.

At this time it occurred to me that there was a possibility of a further use of perforations in these plates. Since vitallium is inert there is no reason why granulation tissue should not grow through these openings and attach the under surfaces of body tissue to those of the top surface covering the plate, holding it more securely against the surrounding tissue. From my experience in inserting these plates there have arisen certain possibilities which I think could be followed, as

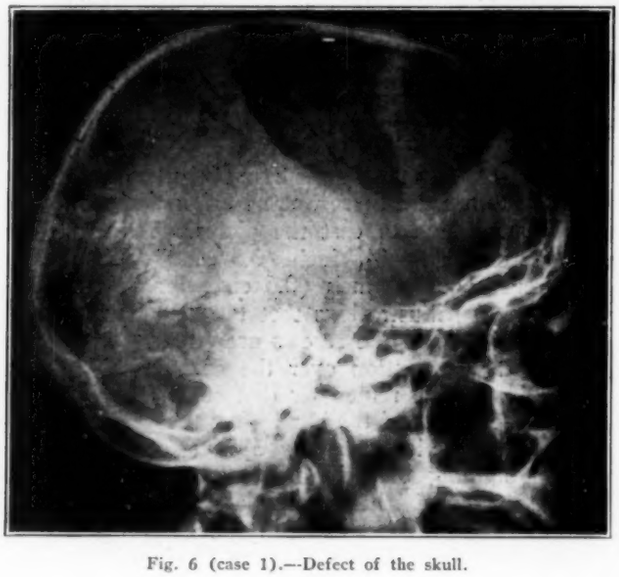

Fig. 6 (case 1).—Defect of the skull.

far as the construction of the plate and the ease of its insertion are concerned.

Vitallium is extremely rigid and has to be cast. The third plate was of 26 gage thickness, and a number of slots were cut into it from the periphery toward the center (fig. 4), allowing the plate to be bent at the time of operation to make it fit more completely the contour of the contiguous skull. However, the slots should be $\frac{1}{16}$ inch (0.16 cm.) wide instead of $\frac{1}{8}$ to $\frac{5}{32}$ inch (0.3 to 0.4 cm.) because the brain tends to push up into the slots. The second skull plate was made from a pattern cut of the bony defect at the time of the original operation. One may not be so fortunate in having 2 such cases as I have described but may have to make a plate for a defect of the skull without a pattern for size. I have thought of using this technic in such cases: A roentgenogram is made of the patient's skull. A piece of lead is then strapped with adhesive tape on the shaven scalp over the defect. Another roentgenogram is taken to determine how close a fit has been made. One may be able to mold the plate so that its contour will be that of the skull in this region. However, if this is not possible one can use the molding wax used in dentistry to get the contiguous contour of the surrounding skull and then build in the proper con-

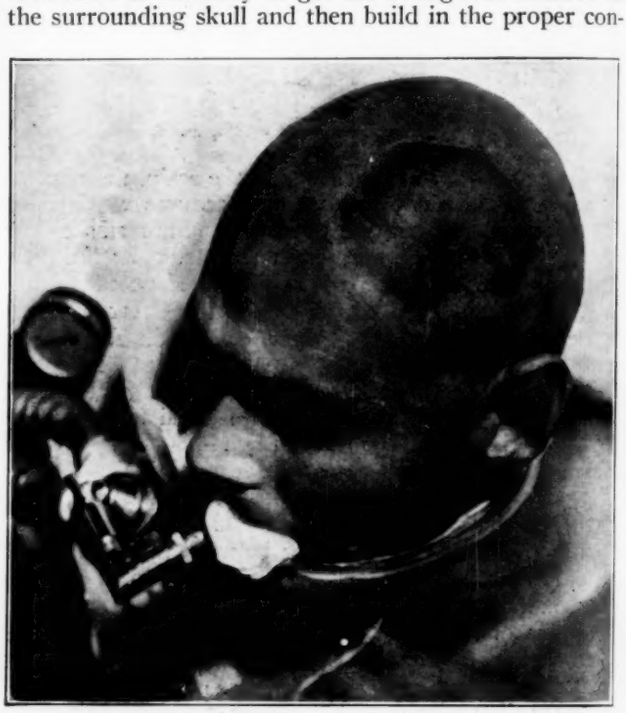

Fig. 7 (case 1).—Patient under anesthesia just before operation. The outline of the defect of the skull can be seen.

tour that one thinks the defect should have. In my second and third cases I used strips of cardboard and cut the contours out from the edge of the cardboard, placing the cut edge against the skull until my eye told me that the contour was apparently the correct one.

Vitallium can be cut with a high speed grinding apparatus, and one can easily get close to the proper shape and contour before the operation. Then at the operation when the defect is completely exposed the metal is marked off where it does not fit, taken off the table, cut off with the grinder, resterilized and tried again. It probably would not take more than twenty minutes to do this. Of course, one can remove some of the bone with a rongeur to make the plate fit.

When I inserted the first plate I did a great deal more than was needed as far as operating was concerned. This was probably due to the fact that I was accustomed to cleaning off the surrounding edge of bone from all adjacent soft tissue in preparation for the use of autogenic bone grafts. This is only extra work and serves no useful purpose. When I inserted the second

and third plates, I merely cut the flap of the scalp free from the dura, put the plates in position over the defect, adjusted the lugs over the surface of the surrounding bone and screwed them fast. The operative time was barely more than an hour, and there was little bleeding.

There is no need to make a groove in the bone for the lugs to fit. They are screwed to the surface of the surrounding skull and project up approximately $\frac{1}{16}$ inch (0.16 cm.) above the contour of the bony skull. This does not interfere with the subsequent healing, and one cannot feel the projection of these lugs through the scalp. A $\frac{1}{50}$ inch (0.05 cm.) drill is used to make a hole in the skull into which the screw is placed.

After the operation there apparently was some fluid present, and this was aspirated on about the third or fourth day. In each case there was no need for another aspiration. The flap of the scalp at the end of the third day was fairly tight over the surface of the vitallium

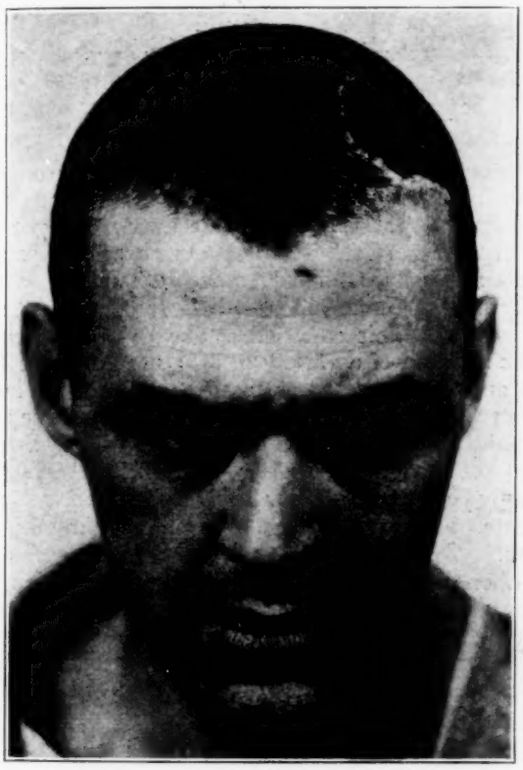

Fig. 8 (case 1).—Appearance of patient nine days after operation. Note normal contour of treated area.

plate. At the end of the sixth day the flap was tight against the plate, and the motion in the flap was less than the motion in the scalp over the portion of the skull not operated on.

The vitallium skull plate has been in place now for two years (fig. 5). A roentgen check-up at the end of eleven months showed no increase in the size of the bony defect and no atrophy of the bone around the lugs or screws. The second plate has been in place one year and the third for six months. Roentgenograms taken at the end of three months showed no atrophy in the second and third cases. One cannot tell by observation or by palpation that there is anything but the patient's own skull beneath the operative scar.

REPORT OF CASES

CASE 1.—C. B., a right-handed man aged 28, had signs and symptoms of intercranial bleeding. A sudden intracranial hemorrhage occurred, causing hemiplegia on the right side. I considered rupture of an aneurysm as the most likely cause. After a few days he became comatose, the pulse rate dropped to 42, the respiratory rate slowed to 6, cyanosis appeared and he became moribund. I did a frontal craniotomy on the left side in the hope of saving him (fig. 6). The hemorrhage was

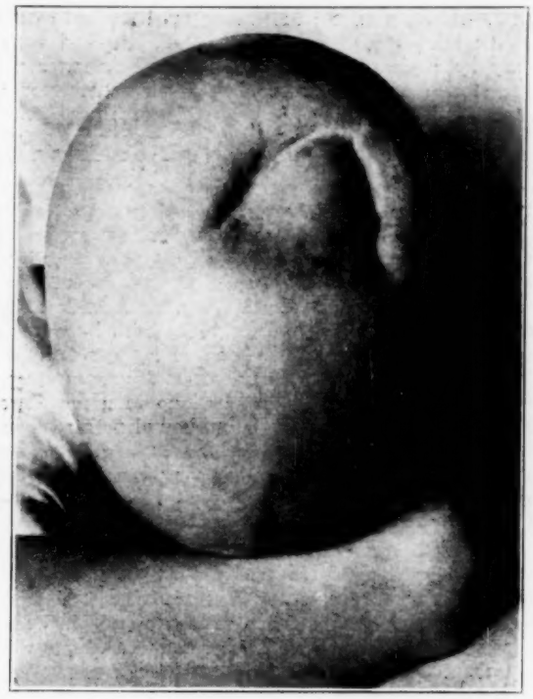

Fig. 9 (case 2).—Defect of the skull.

within the brain, which was under great pressure. The operation was started without the need of an anesthesia. As soon as the dura was opened, the pressure was relieved, and local

Fig. 10 (case 2).—Appearance of head four months after the vitallium plate was inserted.

anesthesia was needed to complete the procedure. The flap of bone could not be reinserted because of the bulging brain. At the end of ten months the patient was walking and had fair use of his arm. He stumbled and struck his head near the defect (fig. 7) several times. The flap of bone (fig. 1)

had been saved for the purpose of making a vitallium plate. He was discharged ten days after operation (fig. 8) and has had no trouble with the vitallium plate, no fluid about it, no headaches, no tenderness of the scalp or any other symptoms. In fact, he has had several blows over the plate without any symptoms.

Case 2.—A. Z., a right-handed man aged 26, had osteomyelitis of the left parietal area of the skull. He had sustained an injury by a piece of metal striking his head after a drop of three stories while he was working on an elevator shaft in a construction job. The osteomyelitic area was removed, and he made an uneventful recovery. He was in constant fear of further injury (fig. 9) and was afraid to go on active elevator construction work. It was a compensation case and meant that a large monetary reserve had to be set aside by the company in the event that some further aggravating factor would occur. Some seven months after the wound had healed a vitallium plate was inserted (fig. 10). The patient was discharged seven days after operation and went back to active construction work two weeks later. His fears have vanished. Five weeks after operation the hood of his car fell off and struck him across the plate. No symptoms developed other than a tenderness of the scalp that cleared up in a few days. A roentgen check-up three months later showed no atrophy about the lugs or screws.

Case 3.—M. D., a man, had a subdural hemorrhage and later had cerebral edema and pressure from intracerebral hemorrhage, so that a flap of bone as well as more of the skull had to be removed to decompress his brain. This gave him a large anterior medial defect of the skull. I used a slotted plate in this instance and was able to bend the wings of the plate between the slots to fit the exact contour of the skull. Roentgenograms of the patient's skull after four months showed no atrophy about the screws.

CONCLUSIONS

1. Operations on the skull using metal plates have been discarded because of the reaction as to a foreign body or the lack of rigidity of the plate.

2. Autogenic bone grafts have given the best results up to the present time, although they require secondary incision and complicated operative procedures and may be absorbed.

3. Vitallium is neutral in vivo and can be used for repairing defects of the skull. It is rigid, stronger than bone, noncorrosive and inexpensive and requires a much less complicated cranioplastic operation than any in use at the present time. The patient can be back at work on heavy duty within three weeks after operation.

4. A vitallium plate makes the strongest and least complicated plastic repair of the skull known.

ADDENDUM

Since this paper was sent in for publication, another plate of 28 gage thickness has been inserted. The slots were less than 1/16 inch wide. In making out the pattern, I indicated where the slots should be cut. This made it possible to bend the plate at the operating room table with a pair of pliers so as to give a perfect fit so far as contour is concerned. Making the plate this thin and arranging the slots obviates any trouble whatever in fitting this plate. The Austenal Laboratories were able to deliver this plate within two days.

The third patient developed a nasopharyngeal carcinoma and died from metastasis eight months after the plate had been inserted. We were fortunate in being able to get a postmortem examination and Dr. Ivan Gaspar, the pathologist, was able to cut the vitallium skull plate out with a half inch margin of bone without disturbing the plate. The condition of the plate was the same as when it was inserted. The high luster was unchanged. The screws were firmly embedded in the bone. The soft tissue had grown about the plate up through the slots and small openings and had completely incorporated the plate in a soft fibrous covering. The tissue over the plate was firmly attached and peeled off the plate much as gelatin would peel off a glass surface. The dura beneath the plate had regenerated itself where the operation had left a defect at the time of the original craniotomies. There was absolutely no reaction and this autopsy proved my theory that the tissue would grow up through and around the openings and slots of these vitallium plates, obliterating all dead space and tending to hold the plate more securely in position as if it were part of the tissue itself.

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SPONTANEOUS HYPOGLYCEMIA IN "SMOKE" DRINKERS

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During the past few years we have had an opportunity to observe an unusual form of spontaneous hypoglycemia which, as far as we are aware, has not been previously reported. The patients concerned have all been chronically addicted to alcohol and have been drinkers of denatured alcohol in a form known locally as "smoke." This so-called smoke has been prepared by the addition of a variety of denatured alcohols (varnish and paint removers, antifreeze, "canned heat") to water; the milky or "smoky" appearance of the resultant mixture has been the basis for its name. Samples of typical denatured alcohols used have always given strongly positive tests for methyl alcohol. Not one of the patients, however, has complained of diminution of vision.

Although we have gathered little information concerning the exact nature and cause of this hypoglycemic reaction, we are reporting our clinical observations on 6 patients in the hope that other cases may be recognized elsewhere and further studies made on the nature of this disturbance in carbohydrate metabolism.

REPORT OF CASES

Case 1.—A. W., an unemployed Negro aged 62, admitted to the Johns Hopkins Hospital on March 19, 1934, had been a heavy drinker for years, consuming at least two or three glasses of whisky a day. Three weeks before admission a chest cold developed with a cough which persisted until two days prior to admission, when he began to feel better. Because of his cold he drank more heavily than ever. The day of admission he became comatose and was brought to the hospital.

The temperature was 96 F. (rectal), pulse rate 80, respiratory rate 28 and blood pressure 200 systolic and 110 diastolic. He was well developed and fairly well nourished and was in deep coma. The skin was cool and dry. There were rhonchi over the right anterior part of the chest. The heart was normal in size and there was a long blowing systolic murmur at the apex. The abdomen was soft, rounded and moderately tympanitic. The liver was not felt, although liver dulness was percussed several centimeters below the costal margin. The spleen was not palpable.

The neurologic examination was of chief interest. There was conjugate deviation of the eyes to the left. The pupils

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were equal and reacted to light. The optic disks were clearly demarcated. The jaws were tightly clinched, but the neck was not stiff. All four extremities were held in such rigid extension that passive flexion was almost impossible. The Kernig sign could not be elicited because of the rigidity of the legs. The Babinski reflex was questionable. The Hoffmann sign was negative. Normally active deep reflexes were obtained throughout, whereas the abdominal and cremasteric reflexes were not present. Blood examination revealed hemoglobin 14.2 Gm., erythrocytes 4.36 million, leukocytes 12,000 with polymorphonuclear neutrophils 98 per cent and lymphocytes 2 per cent. A trace of albumin was present in the urine. From 5 to 6 leukocytes and 2 to 3 granular and hyaline casts per high power field were seen in the urinary sediment. The Wassermann reaction was negative.

The first clinical impression was that the patient had some form of cerebral accident superimposed on a state of alcoholic intoxication.

Blood sugar, nonprotein nitrogen and carbon dioxide combining power determinations were made to rule out the possibility of diabetic coma and uremia. Much to our amazement the blood sugar was found to be 15 mg. per hundred cubic centimeters. This reading was checked on the same sample of blood. The carbon dioxide combining power of the serum was 40.9 volumes per cent and the blood nonprotein nitrogen 36 mg. per hundred cubic centimeters.

About three and a half hours after admission the patient began to show signs of improvement, although he was given no specific therapy. He moved his arms, attempted to remove the mouth gag, and coughed. Two hours later he had returned completely to normal. The spasticity had entirely disappeared. The abdominal and cremasteric reflexes had returned. The Babinski reflex was plantar. The temperature had risen to 101.6 F. There were fine rales near the medial portion of the right scapula. The blood sugar had risen to 105 mg. per hundred cubic centimeters.

From this time on the patient's course was uneventful except for the development of a low grade bronchopneumonia, probably related to aspiration during the comatose state. Two days after admission the blood pressure was 152 systolic and 72 diastolic and two days later 116 systolic and 66 diastolic. The blood pressure remained normal until the time of discharge.

The dextrose tolerance curve (100 Gm. of dextrose by mouth) after the patient had recovered gave the following blood sugar levels: 85 (fasting), 115, 150, 165, 160, 75, 55, 82 mg. per hundred cubic centimeters in one-half, one, two, three, four, five and six hours respectively. The insulin tolerance test (2 units of insulin intravenously) gave a blood sugar of 70 (fasting), 60, 48, 60, 64, 80 and 82 mg. per hundred cubic centimeters in one quarter, one and a half, two, two and a half, three and four hours respectively.

CASE 2.—N. W., a Negro woman aged 28, was brought to the Johns Hopkins Hospital unconscious on Aug. 11, 1935. During the month prior to admission she had consumed 2 or 3 pints of whisky each week. There was no history of previous attacks of unconsciousness.

When first seen, she did not respond to painful stimuli. The pulse rate was 89, respiratory rate 22. There was no record of the temperature. The blood pressure was 120 systolic and 85 diastolic. The respirations were regular and deep. The pupils were contracted but reacted to light. There was spasm of the muscles of mastication and an occasional flexor spasm of the arms and hands. The neck was not stiff. The Babinski reflex was present on both sides. The remainder of the examination was negative.

Laboratory examinations revealed a blood sugar level of 20 mg. per hundred cubic centimeters, hemoglobin 12.4 Gm., erythrocytes 3.88 million, leukocytes 22,000 with a normal differential and a sedimentation rate of 22 mm. an hour. The Wassermann reaction was negative. Lumbar puncture containing 15 cc. of clear colorless fluid and 10 cells was obtained, but the type was not recorded. The Pandy reaction was negative. Examination of the urine revealed a trace of albumin, 4 + acetone, and no diacetic acid.

Specific therapy was not given. The return to normal was slow, and two days elapsed before she fully regained consciousness.

CASE 3.—O. L., a white man aged 68, a machinist, was brought to the Johns Hopkins Hospital in coma on Dec. 19, 1935. Two days before admission he drank two large glasses of rye whisky and followed this with an undetermined quantity of "smoke." The next day he was found unconscious.

On admission the temperature was 97.6 F., pulse rate 94, respiratory rate 12 and blood pressure 80 systolic and 40 diastolic. He was in deep coma and the breath smelled of denatured alcohol. The respirations were slow and stertorous. There was moderate cyanosis of the mucous membranes. The pupils were small and reacted sluggishly to light. There was conjugate deviation of the eyes to both sides. The jaws were so tightly clenched that the mouth could not be forced open. There was extensor rigidity of the extremities. There was contraction of the adductor muscles on stimulation of the sole of the left foot. The Babinski reflex was absent. There was no clonus. Cervical rigidity was not noted. The abdominal reflexes were absent.

The urine contained 2 + albumin and an occasional red blood cell. Hemoglobin was 100 per cent, the erythrocytes numbered 5.1 million and the leukocytes 10,500 with a normal differential count. The blood sugar was 33 mg. per hundred cubic centimeters, the nonprotein nitrogen 46 mg. per hundred cubic centimeters and the carbon dioxide combining power 37.2 volumes per cent. Total proteins were 7.96 Gm. per hundred cubic centimeters with an albumin-globulin ratio of 57 : 43.

The patient was given 250 cc. of warm coffee by rectum and a hypodermic injection of nikethamide and caffeine with sodium benzoate. Following this treatment the blood pressure rose to 130 systolic and 80 diastolic; however, the coma persisted. When it was found that the blood sugar was 33 mg. per hundred cubic centimeters an intravenous injection of 40 cc. of 50 per cent dextrose was given. There was a dramatic response to this treatment. He regained consciousness and began to talk almost immediately. The patient was discharged from the hospital the following day.

CASE 4.—W. B., a Negro laborer aged 35, admitted to the Johns Hopkins Hospital April 6, 1937, was a heavy drinker and went on sprees two or three times a week, but in spite of this he stated that he had a good food intake. Five weeks before admission a penile lesion developed. On the morning of the day of admission he drank some corn liquor and followed this with beer, more whisky and "smoke." He became unconscious at noon and was brought to the accident room.

On admission the temperature was 96 F., pulse rate 80, respiratory rate 20 and blood pressure 170 systolic and 105 diastolic. He was in deep coma and there was Cheyne-Stokes breathing. There were transient attacks of trismus. The extremities were cold. The deep reflexes were hyperactive. The Babinski and Hoffmann reflexes were present on the right, and there was moderate spasticity of the extremities. The neck was not stiff. A granulomatous lesion of the skin was present on the right leg. The heart, lungs and abdomen were normal.

Hypoglycemia due to "smoke" was suspected clinically. The blood sugar was 43 mg. per hundred cubic centimeters and the carbon dioxide combining power 48.5 volumes per cent. Erythrocytes numbered 5.7 million with 97 per cent hemoglobin. The sedimentation rate was 5 mm. an hour and the volume packed red blood cells was 52. The leukocyte count was 10,000 with a normal differential. The Wassermann reaction was negative.

An intravenous injection of 40 cc. of 50 per cent dextrose was followed almost immediately by a dramatic return of consciousness.

Two days later various liver function studies were made. These tests failed to reveal any evidence of disturbed liver function. Bromsulphalein showed less than 5 per cent retention. The galactose tolerance test, 0.9 Gm. excretion in three hours. The levulose tolerance test was normal. The dextrose tolerance test (1.7 Gm. of dextrose by mouth per kilogram of body weight), 77 (fasting), 96, 115, 95 and 75 mg. per hundred cubic centimeters at one-half, one, two and three hour intervals.

CASE 5.—A Negro aged 35 who came to the accident room of the Johns Hopkins Hospital on Aug. , 1938, had two months before drunk a half pint of gin. The next morning he felt weak, perspired profusely, frothed at the mouth, bit his tongue, was unable to speak but did not lose consciousness. He managed to eat a sour pickle and, following this, began to regain his strength. After eating more food he felt stronger, and soon the "spell" passed off.

On the day before admission he did not eat breakfast. At 2 p. m. he had a fried crab and 2 spoons of corn. At about 4 o'clock he drank some corn whisky and soon after this ate two apples. He had no supper, but in the evening he ate two sticks of candy. At 2 a. m. he drank three glasses of beer and, a little later, three quarters of a pint of "white corn whisky." At about 2 o'clock in the afternoon he walked into the accident room and complained of weakness. He asked for a salt tablet and in a few moments became faint, began to froth at the mouth and lapsed into a state of unconsciousness. His temperature was 95.4 F., respiratory rate 20 and blood pressure 120 systolic and 75 diastolic. The pulse was not recorded. The breath smelled of alcohol. The skin was cold and moist. The pupils were small and reacted sluggishly. The jaws were clenched tightly and could not be opened. The neck was not stiff. All deep reflexes were hypoactive. There was no spasticity of the extremities. There was urinary incontinence. The remainder of the examination gave negative results. Soon after admission to the ward, the perspiration became more profuse. Conjugate deviation of the eyes to the left developed, the left jerk became hyperactive and there was a definite Babinski reflex present on the left side. The liver edge was palpable 2 cm. below the costal margin.

The blood sugar was 38 mg. per hundred cubic centimeters. Carbon dioxide combining power was 32 volumes per cent. The hematocrit reading was 48 and the blood leukocyte count was 20,800. Examination of the urine revealed 1 + albumin, 2 + acetone and no diacetic acid.

There was prompt recovery following the intravenous injection of 50 cc. of 50 per cent dextrose. The temperature immediately rose to 99.4 F. The following morning the fasting blood sugar level was 85 mg. per hundred cubic centimeters. A dextrose tolerance test (dextrose by mouth) at this time gave the following results: 113, 104, 98 and 82 mg. per hundred cubic centimeters at one-half, one, two and three hours.

CASE 6.—I. B., a Negro laborer aged 41, chronically addicted to alcohol, has had two observed hypoglycemic attacks following the drinking of "smoke." The first attack occurred in June 1939, at which time he was brought to the accident room of the Johns Hopkins Hospital in coma. The pulse rate was 50, respiratory rate 16 and blood pressure 130 systolic and 80 diastolic. There was a strong alcoholic odor to the breath. The extremities were held in rigid extension but the neck was not stiff. He was perspiring profusely. Hypoglycemia was suspected in view of previous experience with this syndrome. Blood was drawn for sugar determination, and the patient was immediately treated with an intravenous injection of 500 cc. of physiologic solution of sodium chloride and 500 cc. of 5 per cent dextrose. This was followed by 250 cc. of 20 per cent dextrose. The patient responded dramatically to the treatment and soon was mentally clear and able to talk. The blood sugar level in the sample taken before the intravenous therapy was 21 mg. per hundred cubic centimeters.

The patient was admitted to the Johns Hopkins Hospital on Dec. 28, 1939 because of severe alcoholic peripheral neuritis. Stocking and glove anesthesia, foot drop and bilateral optic neuritis were noted. He was found to have macrocytic anemia. The erythrocyte count was 3.51 million, the hemoglobin content 11.6 Gm. and the mean corpuscular volume 98 cubic microns. A dextrose tolerance test was performed in view of the previous attack of hypoglycemia; 97.5 Gm. of dextrose was given by mouth. Blood sugar levels were as follows: 79 (fasting), 115, 90, 93, 40, 66 and 67 mg. per hundred cubic centimeters at one-half, one, two, three, four and five hours respectively. The Wassermann reaction was negative.

In May 1940 he was readmitted to the hospital in his second observed attack of hypoglycemia following the drinking of "smoke." The breath was strongly alcoholic. The lips and tongue were cyanotic. The respirations were rapid (47 per minute), labored and noisy. The blood pressure was 100 systolic and 80 diastolic. The pupils reacted sluggishly to light, and the fundi were normal. The neck was not stiff. The deep reflexes were sluggish on the right but normal on the left except for the absence of the left ankle jerk. The Babinski reflex was plantar. It was of interest that the extensor rigidity of the extremities, noted at the time of the first attack of hypoglycemia, was not present on this occasion. As soon as blood was drawn for sugar determination 15 cc. of 50 per cent dextrose was administered intravenously. A subcutaneous injection of 0.4 Gm. of caffeine with sodium benzoate was also given. He responded satisfactorily to this treatment and was soon able to talk. The blood sugar prior to treatment was later found to be 41 mg. per hundred cubic centimeters. On the following day the fasting blood sugar was 88 mg. per hundred cubic centimeters and the nonprotein nitrogen was 44 mg. The carbon dioxide combining power was 57.9 volumes per cent and the chlorides 92.6 milliequivalents per liter. Bromsulphalein showed 20 per cent retention one-half hour after injection. The galactose tolerance test gave negative results. An intravenous dextrose tolerance test gave blood sugar levels of 95 (fasting), 178, 124, 94, 81, 85 and 89 mg. per hundred cubic centimeters at one-half, one, two, three, four and five hours respectively. An epinephrine tolerance test was performed with 0.4 mg. of epinephrine given intravenously; thirty seconds after the injection the patient began to sweat profusely and became very pale, and neither the blood pressure nor the pulse rate could be obtained. The extremities were held in rigid extension. These symptoms lasted for two minutes. Blood sugar levels of 104, 96, 90 and 91 mg. per hundred cubic centimeters were obtained at one-half, one, two and three hours respectively. Unfortunately, no blood sugar determination was made during the period of acute symptoms following the injection of epinephrine. Anemia was not observed during this admission, although the macrocytosis had become more severe. The mean corpuscular volume was now 102 cubic microns.

COMMENT

All these patients undoubtedly had been drinking some form of denatured alcohol. The odor of the breath in each instance was of the same highly offensive, sickening, alcoholic character and unlike the odor of the breath when ordinary alcoholic liquors have been consumed. Three of the six patients finally admitted that they had been drinking "smoke" prior to the onset of the acute symptoms. Drinkers of "smoke" usually deny this practice to avoid complications with the police. There are several areas in East Baltimore, known to the police, where there are groups of "smoke" drinkers. Four different samples of denatured alcohol have been obtained from stores in one of these areas. The samples were obtained from large metal drums which were labeled "Denatured Alcohol Solvent." One storekeeper admitted knowing that the denatured alcohol which he sold was being used for drinking purposes. The other three storekeepers denied knowledge of any use for this denatured alcohol other than as a solvent.

The four different samples of denatured alcohol were analyzed by the Department of Internal Revenue in Washington, D. C. The report of this analysis, forwarded to us by the deputy commissioner, Mr. Stewart Berkshire, is given in table 1.

The neurologic manifestations were prominent, and it is probable that many patients previously seen with this type of hypoglycemia have been thought to have a cerebral accident. The first patient in this series was thought to have a subarachnoid hemorrhage. It was only to rule out other causes of coma that a blood sugar determination was made and the hypoglycemia recog-

nized. Once this entity was discovered, the subsequent cases were for the most part diagnosed before the blood sugar determination was made. Bizarre neurologic signs such as extensor rigidity of the extremities, unequal deep reflexes, Babinski reflexes, clonus, trismus, conjugate deviation of the eyes and occasional spasmodic twitching of the extremities have been observed. Hypothermia has been uniformly present in the cases in which the temperature was recorded. The blood pressure was elevated in two instances during the attack and returned to normal following recovery. In the remaining four cases it was either normal or subnormal. In no instance was the blood pressure very low or unobtainable. The spinal fluid was normal in the one case in which it was examined. The blood leukocyte count was generally moderately elevated. Although in general there was a reduction of the carbon dioxide combining power, there was no instance of severe acidosis. The lowest blood sugar in the group was 15 mg. per hundred cubic centimeters and the highest 43 mg., the average being 30 mg.

The last four of the six patients were treated intravenously with hypertonic dextrose solution, which resulted in a rapid and dramatic return to normal in each instance.

All the patients came from a low economic level and had undoubtedly been on very poor diets for a considerable period of time. In addition, most of them had eaten almost nothing for the period immediately preceding their attack of hypoglycemia. We have not found evidence of hypoglycemia in the average case of alcoholic intoxication seen in the accident room. The studies performed on hypoglycemia due to "smoke" have revealed evidence of depressed function of the liver in only one instance, and this was not appreciable. It is to be noted, however, that the tests for hepatic function were made following recovery from the acute comatose state.

TABLE 1.—*Report on Four Samples of Denatured Alcohol*

Sample	Per Cent of Ethyl Alcohol by Volume	Per Cent of Methyl Alcohol	Per Cent of Gasoline	Ethyl Acetate, Gm. per 100 Cc.
A.....	86.75	4.39	0.8	3.36
B.....	86.78	4.37	0.7	3.35
C.....	86.43	4.53	0.7	3.54
D.....	86.21	4.32	0.8	3.67

The examination of these samples shows they are proprietary solvents manufactured in accordance with the following formula:

Specially denatured alcohol formula no. 1	100 gallons
Ethyl acetate	5 gallons
Gasoline	1 gallon

Specially denatured alcohol formula no. 1 is prepared in denaturing plants by adding 5 gallons of denaturing grade methyl alcohol to each 100 gallons of 190 proof ethyl alcohol. Specially denatured alcohol formula no. 1 may be obtained only under a permit for manufacturing purposes. Proprietary solvents are manufactured by permittees in accordance with the above formula and are intended for sale and use for solvent purposes. They are sold under trade names and under the regulations pertaining to the production, use and denaturation of ethyl alcohol may not be branded, labeled or sold as denatured alcohol.

Dextrose tolerance curves were determined in several of these cases, but the data are insufficient for any definite conclusions. In case 6 a flat curve was obtained when an oral test was employed. This might indicate either poor intestinal absorption or increased utilization of dextrose. Further studies are in progress with an intravenous dextrose tolerance test which, it is hoped, will throw more light on the nature of this abnormality.

An attempt was made to reproduce this clinical picture in dogs. Two animals were starved for forty-eight hours and then kept in a state of acute alcoholic intoxication for a period of twenty-four hours by the administration of "smoke" through a stomach tube. The material used was the same as that consumed by patient 4 just prior to his attack of hypoglycemia. In neither of the animals was there any appreciable change in the blood sugar curve during the period of coma, which lasted for several hours.

TABLE 2.—*Summary of Clinical Features and Laboratory Results*

Case	Temperature, F.	Abnormal Neurologic Manifestations *	Blood Sugar, Mg. per 100 Cc.	Carbon Dioxide Combining Power, Volumes per Cent	Blood Pressure, Mm. of Mercury
1	96	++++	15	40.9	200/110
2	Not recorded	++++	20	Not done	120/ 85
3	97.6	++++	33	37.2	80/ 45
4	96	++++	43	48.5	170/105
5	95.4	++++	38	32.0	120/ 75
6 A †	Not recorded	++++	21	Not done	130/ 85
B ‡	Not recorded	+	41	57.9	100/ 85

* These included: conjugate deviation of the eyes, extensor rigidity of the extremities, positive Babinski reflex, hyperactivity or inequality of the deep reflexes, and sluggish reaction of the pupils to light.
† First attack.
‡ Second attack.

It is clear that the denatured alcohol has been responsible for the development of hypoglycemia in the patients. The knowledge of the manner in which the poison has acted to produce the change in carbohydrate metabolism has remained obscure. There has been no evidence of either widespread damage to the liver or hyperinsulinism. The reduction of hepatic glycogen by starvation, associated with continued drinking, may have played a role; however, starvation alone has not been known to produce severe hypoglycemia in such a short period. It is possible that the poisonous substance might have caused increased utilization of carbohydrate with resulting hypoglycemia under the particular circumstance of depleted glycogen supply. Another possible explanation, and perhaps the most likely one, is that the poisonous substance temporarily inhibited glyconeogenesis, interrupting the normal conversion of protein to carbohydrate. The transient character of the hypoglycemia has favored this hypothesis. The first two patients recovered spontaneously without specific therapy, and the remaining four patients responded rapidly to treatment with intravenous hypertonic dextrose solution.

CONCLUSION

1. There is a clinical picture of hypoglycemia associated with alcoholic intoxication due to "smoke" (a form of denatured alcohol).

2. The six typical cases reported here presented average blood sugar levels in the acute attack of 30 mg. per hundred cubic centimeters.

3. The most important clinical finding, when present, has been extensor rigidity of the extremities. Bizarre neurologic manifestations of various types were present.

4. In only 1 of the 6 cases was there any demonstrable evidence of damage to the liver.

5. The attempt to produce hypoglycemia in dogs by feeding this alcoholic mixture has failed.

6. Treatment with hypertonic dextrose solution intravenously has resulted in dramatic and rapid recovery.

ISLET CELL TUMORS OF THE PANCREAS

REPORT OF CASE

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Since the report in 1929 by Howland and his associates [1] of a case of dysinsulinism due to an adenoma of the pancreas in which operation was successful, the number of cases reported has increased rapidly. In a recent article Frantz [2] listed 96 cases of tumors of the islet cells found at operation or at autopsy.

It is difficult to determine the exact number of tumors of the islet cells reported to date, since the same cases are cited two and three times by various authors. From a careful investigation of the literature we have gathered 71 cases (table 1) of tumors of the islets of Langerhans in which the diagnosis was made preoperatively and confirmed at operation. These include 5 cases of carcinoma of the islands of Langerhans with gross metastases.

Of the 71 patients 53 were completely relieved of symptoms postoperatively, 12 died at operation or shortly thereafter and 1 was not relieved despite the removal of an adenoma.[3]

In 1924 Harris [4] first hypothesized on the possibility of a functional type of hypoglycemia due to hyperinsulinism. He mentioned the possibility of the hypoglycemia being associated with dysfunction of the thyroid, the pituitary and the other glands of internal secretion. That hypoglycemia and hyperinsulinism were not associated with adenoma of the islands of Langerhans was shown by the fact that Warren,[5] in 1926 in a report on adenomas of the islands of Langerhans, stated that they probably never give rise to trouble during life and have no clinical significance. It was not until the following year that the report by Wilder and his associates [6] of a malignant tumor of the islands of Langerhans with metastases to the liver first drew attention to tumors of the islet cells as a cause of hypoglycemia. After this report, Thalheimer and Murphy [7] in 1928 reported a case involving clinical symptoms of hypoglycemia and low blood sugar levels in which at autopsy a malignant tumor of the pancreas was seen. Later that year the Finneys [8] attempted surgical intervention, in the hope of finding a resectable adenoma, on a patient with clinical symptoms of hypoglycemia and low blood sugar values.

Early in 1929 McClenahan and Norris [9] reported the first case of a single benign tumor in the islands of Langerhans which was associated with hypoglycemia, suspected by antemortem studies on the blood and proved at autopsy. They expressed the opinion that hypertrophy and adenomas of the islands of Langerhans may occur without disturbances in carbohydrate metabo-

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lism but that under certain circumstances there is a definite relationship between the adenoma and a particular symptom complex due to hypoglycemia.

The case of hyperinsulinism due to a tumor of the islands of Langerhans in which operation was successful was mentioned by Mathias [10] in 1928. Howland and his associates [1] were the first to report a case in detail. Since then, each year has seen an increase in the number of reported cases of tumors of the islet cells associated with hypoglycemia, until at present 53 cases in which operation was successful can be found.

TABLE 1.—*Summary of Seventy-One Preoperatively Diagnosed Cases of Islet Cell Tumors of the Pancreas*

Benign adenomas successfully removed.....	37		
Benign adenomas; patients died postoperatively	8		
Total benign		45	63%
Malignant tumors successfully removed....	16		
Malignant tumors; patients died postoperatively	4		
Total malignant		20	37%
Benign adenoma removed without remission of symptoms	1	1	
Tumors with gross metastases.....	5	5	
Total	71	71	100%

The symptoms and signs of hypoglycemia are well known and easily recognized. They are first hunger and a feeling of nervousness, followed by perspiration and vertigo, going on to convulsions, coma and ultimately death. That these symptoms are due not only to hyperinsulinism but to any factor which might cause a lowering of the level of the blood sugar has been brought forward many times (Gammon and Tenery,[11] West and Kahn,[12] Akerberg,[13] Nicholson and Hart [14] and Harris [15]). Wauchope [16] gave an excellent summary of the conditions producing hypoglycemia (table 2).

As can be seen, the differential diagnosis of hypoglycemia states is a large and varied problem. Fortunately many causes can be easily eliminated, but the remainder, which include tumors and hyperplasia of the pancreas, functional hyperinsulinism and those factors causing a lack of opposing secretions, are more difficult to differentiate.

The part played by the thyroid gland in the production of hypoglycemia is difficult to evaluate, since cases of proved adenoma of the islets of Langerhans with complete cure after operation have been found associated with basal metabolic rates varying from — 21 per cent (White and Gildea [17]) to + 28 per cent (Derrick and his associates [18]). Aitken [19] reported a case presenting a basal rate of + 80 per cent in which thyroidectomy relieved symptoms of hypoglycemia for one year, after which they recurred, and at operation three years later an adenoma of the pancreas was removed, with complete cure.

The differentiation of hypoglycemia caused by diseases of the adrenal glands is not a matter of great difficulty because of the other factors by which Addison's disease may be diagnosed. The opposing secretions from pituitary tumors present a more difficult problem. In the cases reported by Friedman [20] there were seen at autopsy both islet cell adenomas of the pancreas and advanced adenomatous hyperplasia of the chromophil cells of the pituitary gland. Kalbfleisch [21] reported a case in which there were five pancreatic adenomas, one of which had been surgically removed, the remainder being found post mortem, and reported also the finding of a hypophysial tumor.

The real difficulty in diagnosis rests between those cases of hypoglycemia due to functional hyperinsulinism and those due to tumors or to diffuse hyperplasia of the islets. Wilder [22] gave three criteria which indicate the organic type of hyperinsulinism in contradistinction to the functional type. These are much the same as those employed by Whipple (cited by Wilder) and are (1) postabsorptive blood sugar values of less than 50 mg. per hundred cubic centimeters; (2) intolerance for (production of attacks on) fasting; (3) normal health and evidence of stability of the autonomic nervous system prior to the first episode of hypoglycemia (Wilder), and (4) relief of such attacks by the administration of sugar, preferably intravenously and without the patient's knowledge of what is injected (Whipple).

Both Whipple and Wilder expressed the opinion that the most important differential point is the response to fasting. Berry [23] came to similar conclusions by the use of tolerance tests done with increasing amounts of carbohydrates. He expressed the belief that

> Cases of marked functional hyperinsulinism should react to increasing amounts of carbohydrates by a progressive lowering of the blood sugar, and starvation should allow the blood sugar to rise. If these postulates should prove true in other cases, then functional hyperinsulinism . . . should easily be separated from other causes of hypoglycemia. From a study of blood sugar curves in cases of spontaneous hypoglycemia due to the presence of an adenoma or carcinoma of the pancreas it is suggested that these tumors are not under nervous or hormonic control and that they are continually secreting insulin.

TABLE 2.—*Condition Producing Hypoglycemia*

- I. Excess of insulin
  - A. Therapeutic injection
  - B. Tumors and hyperplasia of the pancreas
  - C. Functional hyperinsulinism
- II. Lack of opposing secretions
  - A. Disease of the adrenal glands
  - B. Pituitary tumors
  - C. Myxedema
- III. Lack of glycogen
  - A. Destruction of reservoirs
    - 1. Disease of the liver
    - 2. Wasting of muscles
  - B. Abnormal excretion of sugar
    - 1. Renal diabetes
    - 2. Lactation
  - C. Active depletion of stores as in muscular exercise
  - D. Failure to replenish stores, as in starvation
- IV. Interference with regulating center
  - A. Nervous disease affecting the pons varolii
  - B. Overaction of the vagus

10. Mathias: Adenoma of an Islet in the Wall of a Pancreatic Cyst, Med. Klin. **24:** 1814 (Nov. 16) 1928.
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John's [24] report on 3 patients with functional hyperinsulinism whom he treated by giving insulin before meals is of interest in the differentiation of functional and organic hyperinsulinism. He expressed the belief that, since there is a deranged mechanism of the production or regulation of insulin, the giving of insulin before meals would prevent the blood sugar from stimulating the secretion of insulin from the pancreas.

The value of the dextrose tolerance curve in the differentiation of hyperinsulinism is a subject of much debate. Smith and his associates [25] expressed the belief that there is no definite type of dextrose tolerance curve. Fraser, Maclay and Mann [26] mentioned the plateau type of curve as being characteristic of hyperinsulinism. Smith and Seibel [27] commented on the usual low dextrose tolerance curve found associated with hypoglycemia due to pancreatic tumors. West and Kahn [12] stated that in instances of proved hypoglycemia the high or plateau curve has been present most often.

In reviewing the reported cases of proved adenomas of the pancreas in which operations were done, we found reports of dextrose tolerance tests in 44. Of this number 31 presented a diabetic type of curve, an incidence of 70.5 per cent. Figure 1 is a composite graph of all blood sugar values in dextrose tolerance tests gathered from the 44 cases.

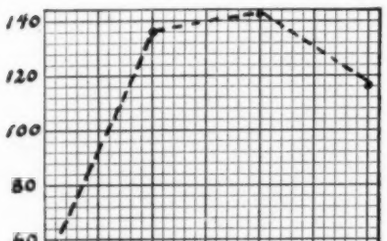

Fig. 1.—Composite graph of blood sugar values as shown by dextrose tolerance tests in 44 cases.

REPORT OF CASE

History.—A white woman aged 41 was admitted to the Cook County Hospital on July 6, 1940 with complaints of "spells" for the past eighteen months and pain in the back. The first attack occurred on Dec. 25, 1938, when she awoke at 6 a. m. and had her breakfast as usual at 7 o'clock. At 10 o'clock she felt tired, lay down and apparently fell asleep. At 11:30 her family tried to awaken her but she did not respond. At 2 p. m. she awoke but was unable to talk. She was helped from her bed to the kitchen and given food, after which she felt well.

Thereafter, she had daily attacks, occurring first before noon, and later earlier in the morning. The periods of unconsciousness varied from one-half to six hours, and there was one attack during which she was unconscious for twenty-five hours. She usually awoke spontaneously and felt perfectly well. Occasionally she felt hungry on regaining consciousness.

On infrequent occasions when members of the family were present they observed that she acted queer before the onset of an attack. On awakening she had no recollection of her former queer behavior.

In June 1939, after having suffered from these attacks for six months, she noticed that eating small meals throughout the day would decrease the frequency of the attacks. After January 1940 she could not control the attacks despite the fact that she maintained her previous dietary regimen. They came on with increasing regularity, lasting for varying periods of time until the date of her admission.

She had a progressive gain in weight from 165 pounds (75 Kg.) in 1935 to approximately 200 pounds (91 Kg.) in 1939. From then to the time of her admission she gained about 35 pounds (16 Kg.).

Her past history was negative but for pneumonia in 1923 and the usual childhood diseases. She had had a uterine suspension in 1924 and a cholecystectomy in 1932. Her obstetric history included seven pregnancies, five of which ended in miscarriages, and she had a son and daughter, both living and well. Her menses began at the age of 13 and occurred every twenty-eight days lasting four days. There was slight dysmenorrhea and moderate bleeding.

Examination.—Physical examination revealed her to be well developed and well nourished; she did not appear acutely ill. The temperature on admission was 98.2 F., the pulse rate was 100 and the respiratory rate 28. The blood pressure was 110 systolic and 70 diastolic, expressed in millimeters of mercury. The remainder of the physical examination revealed no abnormalities except tenderness on palpation in the right upper lumbar region. At the time of the initial physical examination the patient had just been served her evening meal. She did not answer questions readily, and there was a vacant expression in her eyes. She moved her spoon automatically to her lips but did not swallow any food. She began to make guttural sounds and thrashed around in bed. Her arms were thrown from side to side; her body twisted. This lasted four to five minutes, after which she began to perspire profusely. The vacant stare and failure to respond to questioning lasted for another four to five minutes, after which time she appeared normal. For a few minutes she was slightly disoriented as to time, thinking that she had been in the hospital for a full day. She knew that she had had an attack but stated that she had no knowledge of what had taken place during the attack. She had left home early in the morning, having had only a cup of coffee. The journey to the hospital and the wait in the admitting room had prevented her from having her noon meal.

On the basis of the history and the attack at the time of admission, a tentative diagnosis of hyperinsulinism with hypoglycemia was made. This was confirmed the following morning, when a determination of the fasting blood sugar was reported too low to be read.

Laboratory Data.—The urine on admission showed no albumin or sugar, had a specific gravity of 1.015 and was normal on microscopic examination. The Kahn and Wassermann reactions were negative.

A determination of the blood sugar taken after a ten hour fast the morning after admission was reported as too low to be read.[28]

The nonprotein nitrogen level was 48 mg., the creatinine was 2.1 mg. and the uric acid level was 5.1 mg. per hundred cubic centimeters. An oral dextrose tolerance test done on July 10 with 50 Gm. of dextrose gave all figures as too low to be read.

A roentgenogram of the abdomen showed no evidence of shadows of soft tissue or radio-opaque calculi. After a barium sulfate meal given on July 13 in an attempt to demonstrate any possible displacement of the duodenum by the pancreas, no evidence of extrinsic pressure on the duodenum and no pathologic condition in the stomach was noted. A roentgenogram of the chest showed no evidence of pulmonary disease. Visualization of the sella turcica showed a normal size sella with no erosion of the bone. Intravenous pyelograms revealed poor visualization of the calices and pelves of both kidneys.

The basal metabolic rate on July 12 was —5 per cent.

The blood showed 4,600,000 erythrocytes, 84 per cent hemoglobin and 9,550 leukocytes, with a differential count of 54 per cent polymorphonuclears, 34 per cent lymphocytes, 2 per cent eosinophils, 2 per cent basophils and 8 per cent monocytes.

The urinary diastase was 16 units (as determined by the Wohlgemuth method).

24. John, H. J.: Further Observations on the Treatment of Hyperinsulinism with Insulin, Endocrinology **19**: 689 (Nov.-Dec.) 1935.

25. Smith, L. B.; Hashinger, E. H., and Engel, L. P.: Hyperinsulinism Due to Adenoma of Islets of Langerhans, J. Kansas M. Soc. **36**: 363 (Sept.) 1935.

26. Fraser, R.; Maclay, W. S., and Mann, S. A.: Hyperinsulinism Due to a Pancreatic Islet Adenoma, Quart. J. Med. **7**: 115 (Jan.) 1938.

27. Smith, M. G., and Seibel, M. G.: Tumors of the Islands of Langerhans and Hypoglycemia, Am. J. Path. **7**: 723 (Nov.) 1931.

28. Determinations of blood sugar by the Folin-Wu macromethod are read as low as 15 mg. per hundred cubic centimeters. Values below this are not reported because of the inaccuracy in reading them and the presence of other reducing substances.

An Ewald test meal showed 25 degrees free acidity, 35 degrees total acidity and 10 degrees combined acidity. Examinations of the stool were consistently negative for blood.

A specimen of blood sugar obtained at 8:30 a. m. on July 13, after milk had been given several hours previously, was reported as 40 mg. per hundred cubic centimeters.

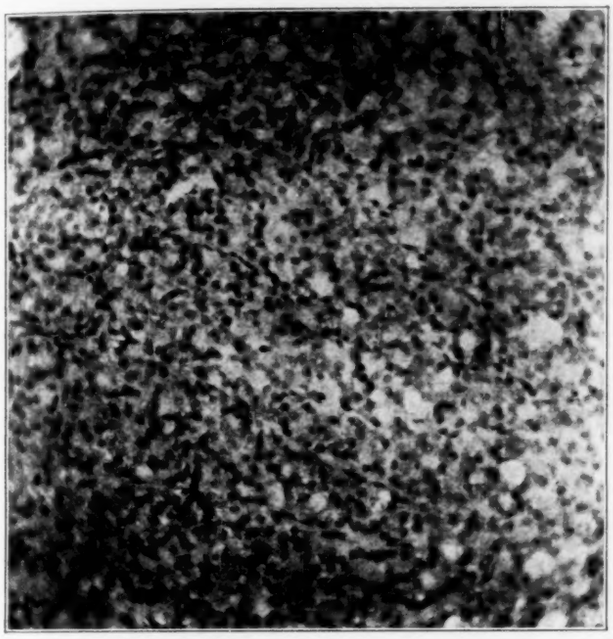

Fig. 2.—Section showing the tumor proper and the alveolar structure of the cells; × 252.

Course in Hospital.—The patient was given a general diet, and a bottle of milk was left by her bedside. She was given instructions to drink a cup of milk whenever she felt an attack coming on.

She was observed at 8:30 a. m. on July 10, one hour after breakfast, complaining of being drowsy; she responded slowly but rationally to questioning and was covered with a profuse sweat. There was a slow response after the taking of 50 Gm. of dextrose by mouth.

She had another, more severe, attack on July 12, after a fast of fourteen hours in preparation for a determination of the basal metabolism. At this time she had convulsive movements of her extremities. She was relieved on receiving 100 cc. of milk by mouth.

She continued to have almost daily mild attacks up to July 20. On that day, after a twelve hour fast in preparation for another determination of the basal metabolism, she had a period of deep coma from which she was roused by the administration of 50 cc. of a 25 per cent solution of dextrose intravenously and 750 cc. of milk by mouth. The attacks continued almost every morning up to the day of operation.

Operation.—On July 27 operation for the removal of a pancreatic adenoma was performed. When the patient was under anesthesia with cyclopropane a transverse subcostal incision was made, the gastrocolic omentum was separated and the pancreas exposed. On the ventral surface of the body of the pancreas to the right of the midline was a 1.5 cm. tumor, which was removed.

The postoperative condition was good. The temperature remained at approximately 100 F. for the first week. During the second week it varied between 99 F. and 100 F. and remained normal thereafter. The incision healed well but for a draining sinus, which was almost entirely closed at the time of discharge one month after operation.

There were no periods of unconsciousness or convulsive seizures at any time postoperatively. The blood sugar levels are shown in table 3.

An oral dextrose tolerance test with 50 Gm. of dextrose on August 27 gave the following readings: fasting, 71; one hour, 136; two hours, 107, and three hours, 56.

An epinephrine tolerance test with 8 minims (0.5 cc.) of epinephrine, on August 28, gave the following: fasting, 93; fifteen minutes, 125; thirty minutes, 136, and forty-five minutes, 166.

An insulin tolerance test with 10 units of insulin, on August 29, gave the following: fasting, 93; one hour, 79; two hours, 75, and three hours, 62.

The basal metabolic rate postoperatively was —21 and —18 per cent.

The blood diastase level fifteen days postoperatively was 32 units.

Pathologic Report.—This was made by Dr. Alex B. Ragins, of the Department of Surgical Pathology.

TABLE 3.—*Blood Sugar Levels After Operation*

Date	Day After Operation	Level	Remarks
7/30	1st	115	Getting dextrose intravenously
7/31	2d	75	Fasting
8/ 5	7th	107	
8/ 7	9th	93	
8/13	15th	93	
8/24	26th	88	
9/30	63d	93	

The specimen consisted of a piece of tissue measuring 2 by 1.8 by 1.5 cm. It was a deep purple-red and was moderately firm in consistency.

The tumor was fixed in solution of formaldehyde and embedded in paraffin. Sections were stained with hemalum and eosin iron-hematoxylin, Mallory phosphotungstic acid, Heidenhain-Azan hematoxylin and Gomori's[29] stain for alpha and beta cells of the islet tissue.

Microscopic study revealed the small islet adenoma to be located on the surface of the pancreas and to be more or less distinctly separated from the pancreas by a few strands of connective tissue infiltrated by focal extravasations of blood and a few polymorphonuclear leukocytes. In other areas there was a definite extension of the tumor into the adjacent pancreatic tissue.

Fig. 3.—Section showing vascularity of tumor and focal extravasations of blood; × 72.

The tumor proper was composed of nests of cells, some of them arranged in small trabeculae, others in the form of small alveoli (fig. 2). The latter structure was particularly evident where the tumor was solid. Scattered throughout the tumor, and particularly in the periphery, were numerous capillaries

29. Gomori, G.: A Differential Stain for Cell Types in Pancreatic Islets, Am. J. Path. **15**: 497 (July) 1939.

engorged with blood, and about these areas were large focal extravasations of blood (fig. 3).

The individual cells contained round to oval, rather uniform nuclei having a vesicular distribution of chromatin. The cytoplasm of the cell stained pale purple-pink and was slightly vacuolated. The cytoplasmic membrane was indistinct. In places there were small focal areas of hyalinization.

With the Gomori stain, the cytoplasm of many of the cells stained a homogeneous light pink. The distinct granules of the cells as described by Gomori were not readily apparent. Basophilic granules in the cells were completely absent, and in many cells free of granules the cytoplasm was pale blue.

The pathologic diagnosis was islet cell adenoma of the pancreas.

Clinical Notes, Suggestions and New Instruments

LEAD IN URINARY CALCULI

FRANCIS CARTER WOOD, M.D., NEW YORK

In a recent issue of THE JOURNAL Trumper and Gordy[1] report an interesting case of lead poisoning under the title "Lead in a Renal Calculus" in which a calculus was removed from the right ureter. This calculus was of the phosphatic type and contained 3 per cent of lead. The urine when analyzed was within the so-called normal range. The writers say "As far as we have been able to learn from a careful search of the literature there has been no previous report of a urinary calculus which contained lead."

Some years ago I carried on a fairly extensive spectroscopic investigation of the metallic content of animal and human tumors. Traces of lead were frequently found. Other investigations showed that the source of this lead was in the food and drinking water. Traces of lead could be found in the water supply of the city of New York and in all of the root vegetables analyzed, most of which came from nearby Long Island and New Jersey farms. Specimens derived from New Hampshire were also found to contain lead. In the ash of the tumors as well as of the vegetables, sodium, potassium, calcium, magnesium, iron, silicon, boron, phosphorus, carbon and aluminum were present in all samples examined. Traces of copper, lead and silver were regularly present. Chromium, zinc, manganese, vanadium, nickel, titanium and lithium generally occurred. Barium and strontium were only infrequently seen. Occasionally rubidium was present. It is obvious that the mineral content of the tumors was merely an expression of the food which the animals or the human beings used. Most of these metallic substances can be recognized in a few grams of ash from a root vegetable, from a tumor or from normal organs, especially the liver. The spectroscopic methods used were exceedingly delicate, and it should be understood that these metals were present only in traces. These facts are not new. The Department of Agriculture published a large number of analyses of plant substances many years ago in which most of these facts were presented.

In the course of this work a discussion arose in medical circles suggesting that the increase in the occurrence of lead poisoning was due to ethyl gasoline from inhalation of motor exhaust. I happened to be in the possession of a collection of bladder calculi removed about 1850-1860. Analysis of some 20 of these calculi of different types showed that they all contained lead, thus proving that lead was as abundant in the urines of patients in 1855 as it is at present, so that ethyl lead can have little or nothing to do with the presence of lead in the body. These analyses were checked with the analyses of about 20 modern calculi furnished me by Prof. J. Bentley Squier, head of the Department of Urology of Columbia University. These also showed lead in practically all cases. A small freshly passed uric acid calculus and 1 of cystin were the only types in which no lead was found. The explanation is simple. The presence of bacteria sets up a chronic inflammatory process in the bladder, the urine becomes alkaline, and the alkali precipitates the calcium and magnesium phosphates, which may ultimately form a calculus. As the precipitate forms, it carries with it all the lead and other elements which form insoluble phosphates or carbonates. The identification of the lead is made in the spark spectrum as follows: About 1 Gm. of calculus is pulverized and dissolved in a small amount of nitric acid which had previously been checked and found to contain no lead in 100 cc. As the lead content of the ordinary laboratory distilled water is rather high, it is necessary to prepare special water by redistillation of the ordinary distilled water with acid and then alkali in a pyrex glass still. The diluted and still acid fluid is then electrolyzed, a pure gold wire being used as an electrode. After the current has been on for a few hours the gold wire is removed from the fluid, clamped in a holder, and a condensed spark at about 15,000 volts passed between this wire and another pure gold wire which is not contaminated with lead. The identification of the lead line in the spectrum photograph is exceedingly easy, as on either side of the most sensitive lead line are two well marked gold lines having a wavelength of 4,065 and 4,052.8 angstroms. Thus they lie on either side of the lead line, which is at 4,057.8 angstroms.

Pathological Department, St. Luke's Hospital, Amsterdam Avenue and One Hundred and Thirteenth Street.

1. Trumper, Max, and Gordy, S. T.: Lead in a Renal Calculus, J. A. M. A. **116**: 1389 (March 29) 1941.

STERILITY OF THE MALE AFTER SYMPATHECTOMIES

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The surgical literature contains many references to the loss of the power of ejaculation from the seminal vesicles and the prostate gland when the first lumbar sympathetic ganglion is removed.[1] The preganglionic motor fibers leave the spinal column through the upper lumbar white rami and join the presacral nerve through the lumbar sympathetic chain and the lateral roots of the superior hypogastric plexus. Presacral neurectomy destroys the postganglionic neuron, and, while libido and orgasm are unimpaired, the power of ejaculation is definitely lost.[2] With the wider application of high lumbar sympathectomy and section of the splanchnic nerves in our clinic for selected cases of Raynaud's disease, thrombo-angiitis obliterans, reflex dystrophy, hypertension and megacolon, the question of male sterility has frequently arisen. It might be said that in most cases of this type a hereditary factor is unmistakable and that male sterility without loss of libido and orgasm is not so unfortunate. Nevertheless, no actual study of condom specimens for motile spermatozoa has heretofore substantiated the assumption that spermatozoa are not ejaculated during coitus. For this reason we have studied for several years the semen of patients who have had different types of sympathectomies. As the usual lumbar sympathectomy does not remove the first lumbar ganglion, the finding of motile spermatozoa in patients who have undergone this operation was not surprising. Then, again, most of our sections of the splanchnic nerves and upper lumbar sympathectomies were done on women; furthermore, the boys on whom this operation had been done for megacolon have not yet reached puberty. Recently, however, a case which seemed suitable for study presented itself. The patient had had multiple sympathectomies—a large part of the sympathetic nervous system having been removed—and he was willing to cooperate.

REPORT OF CASE

J. P., a man aged 25, a press punch operator, admitted to our service at the Research and Educational Hospital, complained of pain and ulceration of the toes, blueness of the fingers,

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dizzy spells and nervousness. He was quite well until September 1938, when pain appeared in the fifth toe of his right foot; after some heat and roentgen treatments the skin broke down. Because of the pain and recurrent ulcerations in other toes and fingers he had to give up his job. He had lost 35 pounds (16 Kg.) during the last year. Nothing seemed to relieve the pain.

On entrance to the hospital the retinal vessels were narrowed with some arteriovenous nicking. The blood pressure was 180 mm. of mercury systolic and 122 mm. of mercury diastolic. The electrocardiogram showed myocardial damage with angina on effort. The urea clearance was 30.2 cc. a minute; the urea ratio was 44. A split renal function test showed delay in the appearance of phenolsulfonphthalein, chiefly on the left side. Pyelograms were negative. The distal phalanges of all fingers except the thumbs were cold and cyanotic. The toes were also cold and dark blue. The third toe of the left foot had been removed and the fifth toe was gangrenous. Microscopic examination of capillaries showed capillary stasis and arteriolar obstruction in the fingers and toes. Biopsy of muscle tissue revealed arteriolar sclerosis with a wall to lumen ratio of 1:1. A diagnosis of diffuse arteriolar disease with hypertension of unknown etiology was made.

Operations were performed as follows: left and right cervicodorsal sympathectomy on Nov. 28, 1939, left lumbar sympathectomy on December 5, right lumbar sympathectomy with renal biopsy on Jan. 23, 1940, left transdiaphragmatic section of the splanchnic nerve (Smithwick) on February 12 and right transdiaphragmatic section of the splanchnic nerve on August 16. Actually the entire thoracic and lumbar chain from the stellate ganglion to the fourth lumbar ganglion and both splanchnic nerves from their highest root (fifth dorsal) to the celiac ganglion were removed. Only the fourth and fifth dorsal sympathetic ganglions remained.

The cyanosis and ulceration of the extremities were promptly relieved. The anginal pains disappeared. Biopsy of renal tissue revealed arteriolar sclerosis. The blood pressure one month after the last splanchnic nerve section was 160 systolic and 100 diastolic with a drop to 85 systolic and 40 diastolic when the patient stood up. Two months after operation the blood pressure fell to 115 systolic and 80 diastolic with the patient in the horizontal position, dropping to zero when he stood still for five minutes. Four months after operation the blood pressure with the patient lying down was 110 systolic and 80 diastolic, and a systolic pressure of 60 with the patient standing. Five mg. of amphetamine sulfate relieved the dizziness on rising in the morning. This was the only complaint. The patient felt well and started working again.

Four months after operation a condom specimen was examined. The patient lived in a neighboring city and the specimen was three hours old when the examination was made; nevertheless there were at least six active motile spermatozoa and a large number of nonmotile spermatozoa in the specimen, indicating that the power of ejaculation was preserved in this patient.

COMMENT

We place this case on record because we possess good proof of complete splanchnic nerve section as evidenced by the maximal postural hypotension. The patient's first lumbar ganglions have been removed, as demonstrated by the loss of sweating in the characteristic areas of the extensor surfaces of the upper third of the thighs. While a single case is insufficient to settle the question of male sterility after section of the splanchnic nerve and high lumbar sympathectomy, it shows that sterility does not have to occur. This finding does not contradict the statement that resection of the hypogastric plexus paralyzes the nonstriated muscle of the seminal vesicles and the prostate; on the contrary, it suggests a possible independent reflex ganglionic activity of cell stations deprived of their spinal connections or that other connections are present. We hope to stimulate further studies of this nature in other clinics so as to confirm or dispel the prevalent opinion that most extensive sympathectomies render male patients sterile.

SUMMARY

A number of motile and nonmotile spermatozoa were found in the condom specimen of a man aged 25 four months after an extensive section of the splanchnic nerve and bilateral dorsolumbar sympathectomies. This finding contradicts the often voiced but undocumented opinion that such sympathectomies produce sterility in the male.

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SURGICAL GOWN WITH INSTRUMENT POCKETS

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The accompanying illustration obviously explains the principle of the gown to be described. It is nothing more or less than a surgical gown patterned after a carpenter's apron. The first point of importance which occurred to me and which likewise will occur to the reader is the possibility of contamination of the instruments placed in the various pockets of the gown. In order to safeguard this point I have a triple thickness of material behind the pockets. After an experience of two years I find this to be ample. To those who might question the efficacy of this, an apron of either cellophane or thin rubber may be used to protect the cloth from the perspiration of the operator. To

Surgical gown with instrument pockets.

any objection which might be raised as to any discomfort occasioned by having the extra layers of cloth in back of the pockets I might add that it represents such a small proportion of the gown that any added warmth is negligible. The pockets can be made in various sizes or depths according to the idea of the surgeon. Two of the instruments that always seem to be the most elusive are tissue forceps and scissors. Each of these instruments has a small pocket of its own; it is obligatory for the nurse to see to it that each pocket is always loaded with the proper instrument. To the surgeon who has simplified his work so that he uses few instruments and those of standard type, especially hemostats, few pockets are necessary. I had such gowns made for my own personal use but soon found the assistants playing "pickpocket." They found it more convenient to reach into the pocket of my gown than to ask the nurse to get the instrument from the tray and hand it to them.

One of the anesthetists calls the contrivance "Woolston's kangaroo gown" because it has so many pouches. Incidentally, it is possible, with the use of the gown, to get along in a pinch with one less clean nurse than formerly.

In other words, the old saying "a place for every thing and every thing in its place" may well be applied to this gown.

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AN OUTBREAK OF BOTULISM

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On March 22, 1941 a family of 6, 2 adults and 4 children aged 7, 9, 11 and 12 years respectively, partook of a meal designated as supper at approximately 6 p. m. The supper consisted of macaroni, prepared with commercially canned mushroom sauce designated as Italian style, milk, apples and oranges. The food of all previous and later meals was considered of no consequence in the light of the clinical symptoms developing in 3 of the children and the subsequent field or epidemiologic investigation. It is of importance to note that the commercially canned mushroom sauce was not heated but was poured directly over the cooked macaroni and served, the 3 children affected obtaining the first servings. The remaining persons, 2 adults and 1 child aged 7 years, likewise consumed this mixture of macaroni and unheated mushroom sauce.

The first symptoms of botulism occurred in 1 child, aged 11, at 4:30 a. m. March 23, in the second child, aged 9, at about 11 a. m. and in the third child, aged 12, at 2:30 p. m. Repeated examination of the other members of the family, mother, father and 1 child aged 7, revealed no symptoms, nor did any develop that could be suggestive of botulism.

The case history of the child who died follows:

History.—A. M., a white schoolboy aged 9 years, entered the Isolation Division of the San Francisco Hospital March 23, 1941 at 4:20 p. m. Between 10 and 11 a. m. he had complained of a slight stomach ache but had been able to eat a little lunch and to go with his mother and sister to a picture show. About 2 p. m., while in the show, he complained that his stomach ache was worse and said his feet were heavy. For a time he was unable to talk and could not stand or walk. He was taken to the Mission Emergency Hospital, and gastric lavage was done. Later, he was sent to the isolation hospital with a tentative diagnosis of botulism.

Examination.—The temperature was 98.6 F., the pulse rate 120 and the respiratory rate 20. The blood showed 88 per cent hemoglobin (Sahli), 4,900,000 erythrocytes and 10,200 leukocytes, with 78 per cent polymorphonuclear cells and 22 per cent lymphocytes.

The boy was well nourished and developed and was dark skinned. He was drowsy but could be awakened and was rational and cooperative. The speech was scarcely understandable, because of thickness. The breathing was shallow and quiet, but there was no cyanosis. The boy complained of a stomach ache and double vision.

The head was normal. There was ptosis of both eyelids. The pupils were dilated and did not react to light or in accommodation. There was first degree lateral nystagmus. There was convergent strabismus at times divergent on the eyes' trying to accommodate. Diplopia and photophobia were present. All reflexes were hypoactive. The tongue was in the midline and the gag reflex was present. The patient could slowly swallow water. On being supported in a sitting position in bed he was unable to support the head erect except momentarily. The thorax showed no unilateral lag, and the breathing was shallow, mostly with the upper part of the chest. The lungs were clear and the heart was normal. There were slight tympanitis and generalized tenderness of the abdomen. The extremities showed general myasthenia with a tendency to flaccidity.

Treatment.—At 6 p. m. the patient was given 1 ounce (28.3 Gm.) of magnesium sulfate, which was promptly vomited. At 9 p. m. he was given 2,500 units of botulinus bivalent (A and B) antitoxin in 1,000 cc. of a 5 per cent solution of dextrose intravenously, one hour after an intradermal sensitivity test, with no reaction.

March 24 at 8:30 a. m. the patient seemed somewhat brighter; otherwise all symptoms were the same except that the speech was thicker. He asked for ice cream, which he took with relish, being fed by his nurse. At 11:30 he received 10,000 units of bivalent (A and B) botulinus antitoxin in 1,000 cc. of a 5 per cent solution of dextrose in physiologic solution of sodium chloride intravenously. During the morning he had periods of slow respirations but no cyanosis. At 12:55 p. m. his respirations were more shallow, and apparently respirations of the sternocleidomastoid type came on suddenly. He was placed in the Drinker respirator and given 1 cc. of a 1:1,000 solution of epinephrine intramuscularly. He died at 1:10 p. m. in the respirator and after death was given 1 cc. of epinephrine into the heart.

Diagnosis.—A diagnosis of botulism was made. A report received April 7 from Dr. K. F. Meyer, of the Hooper Foundation, University of California, said "The evidence strongly suggests that a rare type of Clostridium botulinum type E was responsible for the illness."

Similar treatments were administered to the 2 remaining patients, with complete recovery. It was necessary, however, to place 1 of them in a Drinker respirator for several days. Likewise, 20,000 units of type A and B botulinus antitoxin was given intravenously to both patients with dextrose solution. Decided "limber neck" occurred and remained for twenty-four hours.

The field evidence was interesting. The can was not a "swell," and its contents were stated to have been normal in taste, odor and appearance. The empty can with a few shreds of material was obtained from the accumulated garbage. As reported by Dr. Meyer, it was from the enrichment cultures of the contents remaining in this can and from the gastric washings of all the patients that toxin of Cl. botulinum type E was demonstrated.

The factory at which the mushroom sauce was produced is under the inspection of the state of California and meets every sanitary requirement. The record of the required temperature for the cooking process was in order and readily available, and the possibility of a can or cans not reaching the sterilizer appears remote. The can involved (a no. 1 can) was processed at 240 F. for forty-five minutes. There was discussion as to a varying p_H of the final mixture, the range of p_H extending from 4.2 to 4.9. Likewise, the consistency of the material in the can may vary, which not only may affect the preheating to 160 F. but may have some effect on the penetration of heat during the final heating process. Further investigation of all these matters and additional study of possible heat-resistant strains may materially improve the present prescribed process. The mushrooms used came from Yugoslavia, were dried and were packed in sealed cans. The laboratory data on the toxin demonstrated, type E (Gunnison, Cummings and Meyer [1]), are indeed interesting.

COMMENT

The fact that this outbreak of botulism, 3 cases with 1 death, is the first in many years reported as being due to a commercially canned product is a rather remarkable and satisfactory record. The history of 6 persons' consuming the same food, with 3 showing no symptoms whatever, and the use of a prescribed heating temperature and process generally and heretofore regarded as safe, mark this outbreak of botulism as unusual in several features.

The clinical use of nonspecific botulinus antitoxin with recovery in 2 cases is of doubtful or no significance. It is indicative, however, of the necessity of being conservative in judging the effect of the antitoxin, specific as to type or otherwise, in cases of botulism. Any laboratory reports and animal inoculations indicating the presence of toxin, the type and the results of enrichment cultures may be so delayed or prolonged as to be of no use in any specific clinical treatment of patients. Furthermore, the rapidity of absorption or fixation of botulinus toxin has been demonstrated in many outbreaks of the disease and in laboratory experiments.

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1. Gunnison, J. B.; Cummings, J. R., and Meyer, K. F.: Clostridium Botulinum Type E, Proc. Soc. Exper. Biol. & Med. **35**: 278, 1936.

Special Article

LEGAL RESPONSIBILITY FOR MEDICAL MALPRACTICE

VI. FURTHER INFORMATION ABOUT DIRECT CAUSATION AND DAMAGE

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This is the sixth and last of a series of articles on "Legal Responsibility for Medical Malpractice." The five previous articles were published in The Journal March 8, May 10, May 31, June 14 and June 21.

III. DIRECT CAUSATION (PROXIMATE CAUSE)

In law, as in medicine, the question of responsible cause, the relation of cause and effect, is a perennial inquiry; one constantly seeks to incriminate some causal agent when the "status quo" has been changed.

In medicine, as in law, the question arises: At what point should one rest in his effort to trace back the responsible or "efficient" cause? The pure scientist will say, "I shall halt only where crudities of present science momentarily make halting necessary; no cause can ever be too remote for concern, so long as some preceding cause still lies undiscovered." The medical practitioner will say, "I must concern myself with the immediate cause, the cause of the sudden illness of John Jones, which will enable me to treat him intelligently and fairly and do reasonable justice to his case. Practicality will not permit me to go into remote causes which lie entirely beyond my apparatus for diagnosis and the time at my disposal." He will say, with full knowledge that he speaks of immediate and not ultimate cause, "This man has been sick, but I have found the cause; it is a bronchogenic carcinoma. His condition calls for lobectomy." The pure scientist will say, "Here is a bronchogenic carcinoma. It is an effect for which I must find the cause. Its purposeless mass must be caused by excessive increase of cells, but this is caused through unrestrained and ceaseless division by mitosis. However, this is no answer, for such wild and unruly growth in defiance of the normal laws of growth must be caused by lack of a principle of restraint which usually checks growth at the physiologic optimum." In this vein, the pure scientist pushes back in his investigations from one remote cause to another more obscure. He would consider it negligence to drop the inquiry short of the range of the furthermost causal connection.

The law, like the ordinary practitioner who administers medicine, from reasons of practical urgency must often forego the tracing of causation to its remote antecedents. The disputes which crowd the dockets of the court are numerous, and if the distant cause of every present effect were given legal significance corps of investigators, of psychologists and of experts of all sorts would be at work for months whenever John Brown stole the pig of Elmer Jones. The dispute could be made a "cause célèbre," a deep delving into remote aspects. But these litigants cannot afford the cost of this elaborate machinery or the time for such investigations; they have their hay to get in before the next rainfall. Nor does society contain enough members to man the microscopes in an "oil immersion" search for the spectre of absolute truth. Fixing final psychologic responsibility would often call for fathomless exploration. Consequently, courts are constrained to evolve rules for doing substantial justice, with the hope that the result in each particular case will closely approximate actual justice. They must set up certain norms of behavior as good or bad and make their standards for measuring conduct as objective as possible. They must fix, artificially to be sure, certain limitations on the tracing of antecedent cause and say, "Beyond these points practical exigencies of the present day do not permit us to go." There is no doubt that formulas for tracing the "proximate" or "legally efficient" cause depend to some extent on judicial conceptions as to where the risk of loss should fall. Thus, in certain cases courts hold that when an actor, as a reasonably prudent man, could not foresee injury of the character complained of, the item of damage is a "remote" and not a "proximate" consequence of his negligence. For such remote consequences, they will refuse to hold him legally responsible. This rule may be, and often is, held out as a purely logical rule of causation. In reality, it is a mechanism whereby risk of loss is removed from the shoulders of the man of action in a society which prefers initiative to passivity and changers of the "status quo" to hermits.

Realizing that rules of "proximate cause" have been bent by the tongs of practical exigencies and social policy while being hammered on the anvil of law, one will not be surprised if they diverge at times from strictly scientific conceptions.

The "direct causation" branch of my formula depends on the whole law of "proximate causation" as evolved and applied in thousands of diverse cases rather than on special principles relating to medical cases as an isolated group. It is a subject which has provoked difference of opinion among courts and controversy among scholars. But I feel, however sharp the clash of points of view, that the reader needs some point of departure. Few sources could serve as a safer or more enlightening introduction to general principles than the distinguished writings of Prof. Joseph Beale, from which I quote certain passages and illustrative cases verbatim.[1]

1.——— a non-actor ——— should be held responsible only if his failure to act was in itself a legal wrong, that is, if he had a duty to act.[2]

2. Starting with a human act, we must next find a causal relation between the act and the harmful result. . . . Where the act is the failure merely of a legal duty (omission to act) causation is established only when the doing of the act would have prevented the result; if the result would have happened just as it did, whether the alleged actor had done his duty or not, the failure to perform the duty was not a factor in the result, or, in other words, did not cause it.

Example: In *Ford* vs. *Trident Fisheries Company*, 122 N. E., Massachusetts, 389, 1919, where Ford, the mate, fell from the defendant's vessel and never rose to the surface, and the ship's boat was negligently lashed to the deck so that it could not be seasonably launched and used; it was held that in the absence of evidence of the possibility of saving Ford, causation by the defendant had not been proved.[3]

1. Beale, J. H.: The Proximate Consequences of an Act, Harvard Law Rev. **33:** 633, 1921.

2. This is a result reached equally under principles of proximate cause or on alternative lack of "dereliction," since omission to act cannot constitute negligence when there is no duty to act. See part V of this paper, which treats of duty and dereliction (J. A. M. A. **116:** 2755 [June 21] 1941).

3. A number of malpractice cases have been won by physicians on this failure of a plaintiff to meet his burden of proof of causation. For example, in *Ramberg* v. *Morgan* (Iowa Supreme Court) 1928, 209 Iowa 474, 218 N. W. 492, a police surgeon was negligent in diagnosing the mortal injury to the brain of an unconscious motorist as intoxication and in failing to refer him to an available hospital for proper studies; but no legal liability was made out because the decedent's widow failed to prove that proper action could have averted the death.

3. It has been seen that an act which in no degree contributed to the result in question cannot be a cause; but this, of course, does not mean that an event which might have happened in the same way, though the defendant's act or omission had not occurred, is not a result of it. The question is not what would have happened, but what did happen.

Example: A murdered man would have died in time if the blow had not been given; yet, the murderer's blow is a cause of his death. A man would have died from a small dose of poison, yet if he was given twice as much, the entire amount of poison given him was a cause of his death.[4]

4. If two persons are active in bringing about a result, either by act or wrongful omission, each act or omission is no less a cause of the result because the result might have happened exactly as it did, though one of the persons had not acted, the cause attributable to the other having been sufficient to bring about the result. One might have caused the result, but in fact both did so.

Example: Where several persons, owning separate oil wells, allowed oil to escape into a creek, where it became ignited and eventually burned plaintiff's building, each owner is a cause, and if the result is proximate, all are equally liable. (*Northup* vs. *Eakes*, Oklahoma Supreme Court, 178 Pac. 266, 1919.)

5. A result is none the less attributable to the defendant's act or omission because it was followed or accompanied by a wrongful omission on the part of some one else. Thus, if it is the duty of two persons to do a thing and neither does it, the resulting injury is attributable to either failure.

Example: Defendant was bound to supply a dry floor for workmen; another was employed to dry the floor by sanding. The floor being wet and not sanded, plaintiff slipped and was injured; this was the result of defendant's failure in duty. (*Harwell* vs. *Columbia Mills*, 98 S. E. [S. C.] 324, 1919.) [5]

6. The whole problem may, therefore, be stated thus: When is one responsible for the operation (*a*) of an active force which he has created; (*b*) of an active force which acts upon a passive force which he created, or upon a passive force which he was legally bound to change . . . if the principle of proximity is discoverable, it must be by some method of relating the defendant's act to the final active force.

(Professor Beale's article continues with the declaration that proximity of result does not require the result to be physically direct or direct in time or place, but it must be logically direct—direct in causal sequence.)

7. The connection of the defendant with the final active force may be sought in two ways. His connection with it may have been an active one; either by himself bringing it into existence, or by causing another person to do so. On the other hand, the defendant may have acted, and the force thereby loosened, may have spent itself, coming to equilibrium in the form of a condition of forces which may or may not be stable. If, then, this condition is unstable, if it is in appreciable danger of being acted upon by an oncoming force, the defendant who thus created a condition in the path of an oncoming force stands in a certain causal relation to the latter force, though the relation is worked out through the passive line. The same thing may be said if the defendant whose duty it was to change a condition, which was in danger of such an oncoming force, failed to remove the condition; in that case also he comes into a causal relation with the new force.

8. Further Elaboration of 7.

a. Cases illustrating principle "that a direct result of an active force is always proximate."

1. Injury direct and immediate, but unforeseeable.

Example: The defendant assaulted the victim; the victim had heart disease, and died of fright. Defendant is the direct and proximate cause of the death. (*State* vs. *O'Brien*, 81 Ia. 88, 46 N. W. 752, 1890.)

b. Injury caused by direct transmission of defendant's force, as by one brick in a row being caused to fall upon the next until the last brick is thrown down.

Example: Defendant with his tug wrongfully ran against a pile in the river; the force was transmitted through intervening piles until it threw out a brace to keep two piles apart, and plaintiff's leg was caught between these two piles. This was the direct and proximate result of defendant's act. (*Hill* vs. *Winsor*, 118 Mass. 251, 1875.)

c. Injury caused by the aggravation of a preexisting disease or unhealthy condition.

Example: Where a latent disease was aggravated by defendant's act, the act is the direct and proximate cause of the entire result. (*Vosburg* vs. *Putney*, 80 Wis. 523, 50 N. W. 403, 1891; *Hahn* vs. *Delaware, L. & W. R. R.*, 92 N. J. L. 277, 105 Atl. 459, 1918.)

d. Injury caused through the creation and later development of a septic or diseased condition.

Example: Where the injury causes septic changes in the body, there being no new outside force concurring, the resulting harm is a direct and proximate consequence of the injury. (Development of septicemia: *Armstrong* vs. *Montgomery St. Ry.*, 123 Ala. 233, 26 So. 349 1899; development of carbuncle followed by septic infection: *Day* vs. *Great E. C. Co.*, 104 Wash. 575, 177 Pac. 650, 1919; development of tuberculosis: *Clarke* vs. *New A. C. Co.*, 179 Pac. [Cal.] 195, 1919.)

In one important class of cases, however, the courts seem to have held the opposite view. Where defendant negligently caused a physical injury, the immediate effect of which was the insanity of the injured person, who in a fit of insane mania committed suicide, the death is held not to be a proximate result of the injury. (*Scheffer* vs. *Washington C. V. M. & Ct. S. R. R.*, 105 U. S. 249, 1881.) This opinion seems hardly reconcilable with the current of authority on this subject.

e. Injury caused through the subsequent action of already operating natural forces.

Example: The defendant, a master of a vessel, carelessly missed stays in a high wind and flood tide, and the wind and tide carried his vessel against a sea wall and injured it; defendant's negligent act is a proximate cause of the injury to the wall. (*Romney Marsh* vs. *Trinity House*, L. R. 5 Ex. 204, 1870.)

9. It is to be noticed that the direct result of a passive cause is not necessarily proximate; proximity of result following primarily the active line.

Example: Where a train stood more than five minutes across a highway, in violation of law, and plaintiff's automobile driving along the highway collided with it; the position of the train was held not to be a proximate cause of the collision, but "only a condition." (*Gilman* vs. *Central Vermont Ry.*, 107 Atl. Vt. 122, 1919.)

10. Though there is an active force intervening after defendant's act, the result will nevertheless be proximate if the defendant's act actively caused the intervening force. In such a case the defendant's force is really continuing in active operation, by means of the force it stimulated into activity.

4. See *Grainger* v. *Still* (Missouri Supreme Court) 1905, 187 Mo. 197, 85 S. W. 1114, 70 L. R. A. 49, which holds that a physician who improperly treats incipient disease of the hip as a partial dislocation of the joint, by reason of which the patient is subjected to great sickness and suffering and crippled for life, cannot escape liability on the ground that the same result would have ensued from the disease alone if he had not interfered. Justice Marshall said: ". . . It stands to reason that inflammation is not cured or bettered by irritation or by rotating the parts so suddenly and violently as to result in fever and great soreness. If the plaintiff had hip disease, it was in the first stages, and, therefore, she stood a better chance of having the disease arrested or cured by proper treatment than she would stand after her hip had been subjected to the violent treatment that the defendant subjected it to. It is too plain to admit of argument or serious question that it does not lie in the defendant's mouth to say that the same results would have ensued from hip disease even if he had not treated her as he did. It could as well be argued that where a patient is improperly treated for a fracture of a limb, and gangrene sets in and the patient dies, that the physician is not liable because the patient had consumption and would have died anyway. A patient, however afflicted, is entitled to let nature take its course, and not have even natural consequences precipitated by the improper treatment of the physician, or by an improper diagnosis, and hence the improper treatment applied."

5. Patient A, suffering from a dislocation of the hip, goes to physician X, who negligently diagnoses the condition as rheumatism and so treats it. Two months later, A quits X and consults Y, who correctly diagnoses the condition by means of a roentgen examination, but negligently abandons efforts to reduce it, treating A only by massage. X is liable for the end deformity, and so is Y. The breach of duty by one is no defense to the other. It does not break the chain of proximate causation or afford ground for mitigating damages. As is often the case in such situations, more than one component of my malpractice formula, "duty, dereliction, direct causation and damage" is involved. In this case, both direct causation and damage are involved and, in one sense, duty as well. This problem will be adverted to again under "damage."

a. The simplest case of this sort would be an effective request to the intervening party to act, as in the typical case of A employing B to kill C, or of A commissioning B to make a contract with C.

Note: This is really the basis of the rule in the law of agency that a principal is responsible for the authorized act of his agent. ("Qui facit per alium facit per se.")

b. Defendant may by his conduct so affect a person or an animal as to stir him to action; the result of such action is chargeable to defendant.

Example: Defendant, driving a sleigh, ran into a horse attached to another sleigh; the horse bolted and struck the plaintiff. Defendant is a proximate cause of the injury to plaintiff. (*McDonald* vs. *Snelling*, 14 All. [Mass.] 290, 1867.

11. The defendant by his act may put some one in danger of loss (or of further loss) and that person may thus be caused to act defensively; the direct result of this defensive act is a proximate result of defendant's act. The intervening actor is usually the person whose rights are endangered by defendant's act.

Example: Defendant, while driving a horse in the street, suddenly and negligently pulled around to avoid a coming vehicle; plaintiff, jumping out of the way of defendant's horse, got in the way of the other vehicle and was injured. This injury was a proximate result of defendant's act. (*Boggs* vs. *Jewell Tea Co.*, 263 Pa. 413, 106 Atl. 781, 1919.)

12. The intervening person may be a third person, acting either of his own motion or by employment of the person whose rights are in danger.

Example: Defendant wrongfully filled plaintiff's cellar with explosive illuminating gas; plaintiff sent a plumber into the cellar to find the leak. The plumber lit a match to find the leak, and the gas exploded, damaging plaintiff's house; this was a proximate result of defendant's act. (*Burrows* vs. *March Gas Co.*, L. R. 5 Ex. 67, 1870.)

This is the basis of the responsibility of the person causing a personal injury for the act of a physician or surgeon in attempting to cure the wound.

Example: Defendant wounds plaintiff, who calls a physician to cure him; the physician, whether carefully or negligently, does an act which injures plaintiff; this is a proximate result of the wound. (*Com.* vs. *Hackett*, 2 All. [Mass.] 136, 1861; *Purchase* vs. *Seelye*, 231 Mass. 413, 121 N. E. [Mass.] 413, 1918; *Hooyman* vs. *Peeve*, 168 Wis. 420, 170 N. W. 282, 1919.)

It is to be noted that the defendant is responsible for the physician's act only if that act is bona fide intended as an attempt to cure the harm inflicted by defendant. If the physician should seize the opportunity to experiment, or maliciously to harm the victim, the defendant's act would not cause the physician's. In the Bush case (*Bush* vs. *Commonwealth*, 78 Ky. 268, 1880), the attending physician communicated scarlet fever to the defendant's victim. This was held not a proximate consequence of defendant's act. Nor is defendant responsible for a mistake of a nurse employed to carry out the directions of the physician who administers a wrong and harmful remedy. (*Thompson* vs. *Louisville & N. R. R.*, 91 Ala. 496, 8 So. 406, 1890.)

13. The defendant by his attack upon another may cause the person attacked (or that person's husband) to act in defense, and thereby be the proximate cause of the direct result of such action.

Example: An assured person made an attack upon a woman; her husband in her necessary defense killed him. The assured person caused his own death. (*Bloom* vs. *Franklin L. I. Co.*, 97 Ind. 478, 1884.)

14. In Pennsylvania . . . the courts have usually refused to regard the direct result of an active force as proximate unless it is foreseeable.

Example: An engine on defendant's railroad negligently hit a woman at a crossing, and threw her body against plaintiff, injuring him; this was held to be a remote result of hitting the woman. (*Wood* vs. *Pennsylvania R. R. Co.*, 177 Pa. 306, 35 Atl. 699, 1896.)

15. If the defendant's active force has come to rest, but in a dangerous position, creating a new or increasing an existing risk of loss, and the foreseen danger comes to pass, operating harmfully on the condition created by defendant and causing the risked loss, we say that the injury thereby created is a proximate consequence of the defendant's act.

Example: A sick seaman was sent aloft by the master of the vessel, it being apparent that he was in danger there; the seaman, by reason of his weakness fell overboard. This was a proximate result of the master's act. (*United States* vs. *Freeman*, 4 Mason [U. S.] 505, 1827.)

Example: A manufacturer sold a loaded rifle as unloaded; it was accidentally discharged and injured plaintiff; the injury was a proximate result of the manufacturer's act. (*Herman* vs. *Markham A. R. Company*, 258 Fed. 475, 1918.)

16. On the other hand, where defendant's active force has come to rest in a position of apparent safety, the court will follow it no longer; if some new force later combines with this condition to create harm, the result is remote from defendant's act.

Example: Defendant railroad put plaintiff, a passenger, off the train at the wrong station; she was forced to spend the night at a hotel there, and was injured by the explosion of a lamp in her room. The injury was not proximate to defendant's act. (*Central of Georgia Ry.* vs. *Price*, 106 Ga. 176, 32 S. E. 77, 1898.)

The commonest phrase, probably, is that the "injury shall be the natural and probable result of the act" . . . a more accurate phrase, which is gaining in use, is that the intervening force, unless it is to make the result remote, must be foreseeable.

17. It has been argued that the mere fact of the new force being foreseeable will not make the result proximate to defendant's act; it is only where the risk of the new force was created or increased by the act. This is believed to be the rule upon which the courts actually proceed.

Example: Where a railroad improperly delays carriage, and then starts it again, and in later crossing a floodplain the goods are destroyed by a flood, the chance of which was as great at the time the goods should have been at the place as at the time they were there; the delay should not be regarded as a proximate cause of the damage. (*Denny* vs. *New York Central R. R.*, 13 Gray [Mass.] 481, 1859; Contra, *Michaels* vs. *New York Central R. R.*, 30 N. Y. 564, 1864.)

18. The doctrine of "attractive nuisance," so-called, is one of the law of Torts no less than of Causation; but it involves a causative element. One who leaves a thing, which attracts children to play with it, in a place where children can get it, thereby creates a situation of active danger; and, if the act of the child brings about a catastrophe, it is a proximate result of leaving the thing about.

Example: Defendant left an unlocked push-car near its railroad where children could get at it; a child pushed it on the track and was killed by a train. If the act of a child could have been foreseen, defendant is a proximate cause of the death. (*Follett* vs. *Illinois Central R. R.*, 288 Ill. 506, 123 N. E. 592, 1919.)

This doctrine is the basis of the explosive cases. Defendant gives a child a pistol, explosive cap, or something which by exploding would cause injury, or leaves it in the child's way; he is a proximate cause of any injury the child may do with it, so long as it remains in his hands. (*Anderson* vs. *Newport Mining Company*, 202 Mich. 204, 168 N. W. 523, 1918.)

It is to be noticed that if the explosive gets into the hands of an adult, the defendant's force has ceased to be an active danger; if the explosive thereafter gets into the hands of a child, defendant is not the proximate cause of anything this child may do with it. (*Pittsburgh Reduction Company* vs. *Horton*, 87 Ark. 576, 113 S. W. 647, 1908.)

19. It is often said that where a criminal, or as it is often put, an illegal act of another, intervenes after the defendant's act, the latter ceases to be a proximate cause.

Example: Defendant wrongfully left open a gap in the plaintiff's basement wall; thieves entered and stole plaintiff's goods. Defendant was not a proximate cause. (*Andrews* vs. *Kinsel*, 114 Ga. 390, 40 S. E. 300, 1901.)

This was a principal ground for holding the Cunard Steamship Company not liable for injuries suffered from the sinking of the Lusitania. (*The Lusitania*, 251 Fed. 715, 1918.)

In spite, however, of much authority to this effect, the statement must be regarded as exceedingly questionable. If an employee of a storage warehouse should leave a window open, it is submitted that the stealing of the goods would be a proximate result.

20. To sum up the requirements of proximity of result:

1. The defendant must have acted (or failed to act in violation of a duty).

2. The force thus created must (a) have remained active itself or created another force which remained active until it directly caused the result; or (b) have created a new active risk of being acted upon by the active force that caused the result.

I make no apology for reproducing so much of this helpful writing, for it is inaccessible to many readers. Beale's formulation of proximate causation has exerted considerable influence, and it has the additional virtue of providing vivid illustrations.

In *Vigneault* v. *Dr. Hewson Dental Company*, 1938, 15 N. E. (2d) 185, the Supreme Judicial Court of Massachusetts accurately stated the rule as to the degree of certainty required in the proof of causation. A patient with an infected mouth had several teeth pulled by defendants who anesthetized him by multiple injections with needles rather than by using a safer "block method" currently employed by other dentists. The plaintiff recovered judgment for $4,450 on an auditor's finding that the injections produced osteomyelitis. The defendant contended on appeal that causation had not been proved. The Supreme Judicial Court said, in upholding the judgment:

The plaintiff was required to establish that the negligence of the dentist was the reasonably probable cause of the disease, but was not required to exclude all other possible causes thereof.

Proximate causation has often been the crucial issue in malpractice cases. Detailed consideration of these interesting decisions rightfully calls for a separate study. In this paper it is possible only to introduce first principles.

IV. DAMAGE

Some persons might say that the fourth word used in my formula, "duty, dereliction, direct causation and damage," should be "injury."

I have avoided the latter term consciously, for it is a so-called "word of art" in law, used to signify "legal injury." "Legal injury," so used, implies that a plaintiff can show all elements requisite to establishing the alleged wrongful character of the defendant's conduct.

This special meaning is not agreeable to my approach, for I break down the conduct into separate and independent factors, and the presence of one essential ingredient is never intended to imply the existence of another. I have thought it better, therefore, to avoid the confusion which the word "injury" might import by making use of the term "damage" in its popular sense of "harm." Since legal compensation is not granted for every type of harm, I use the word "damage" in my formula to cover the types of actual harm for which the law will allow money damages to a plaintiff.

The question of damage should be broken down into the most basic inquiries one can frame in the suitable investigation of a particular problem. These I deem to be as follows:

1. Was there any actual harm?
2. Was the harm of a kind for which the law allows damages?
3. Even though the defendant was negligent, did his conduct cause the damage of which the patient complains?
4. What are the principles on which the court might permit an award of damages?
5. Does a judgment for past damages bar a later action for future damages?
6. Assuming that an award has been made only as to legally compensable items, do the courts have power to set aside a jury verdict which is grossly excessive?

1. Was There Any Actual Harm?

Without reference to the legal compensability of a particular grievance, a good initial question to apply to all cases is this: can the patient show any actual harm arising from the alleged dereliction? If not, he can have no redress in an action for negligence and even for intentional invasion of some legal right of plaintiff no recovery save nominal damages (1 cent to $1). He must both plead and prove actual damage before he can recover any substantial award.

The point is neatly illustrated in a Canadian case in which the plaintiff, Clarendon Smith, sued a physician in an action on the case for unskilfully and negligently treating his wife in childbirth (*Smith* v. *Carder* [Court of Queen's Bench, 1883] 11 Upper Canada Queen's Bench Reports, 76). On the trial, a jury had returned a verdict for plaintiff in the amount of £25; on appeal, the higher court held it was insupportable. Chief Justice Robinson said:

It is quite clear, we think, that the first count of this declaration lays no good cause of action, for it merely states negligence without averring that any injury or damage accrued to anyone from that negligence.

(The first count merely said that the defendant conducted himself in an ignorant, unskilful, negligent and improper manner in the delivery of the plaintiff's wife, not alleging any injury in particular.)

An action might as well be brought against the driver of a stage coach for negligence in letting the reins drop from his hand, or in not having his wheels well secured when the carriage, nevertheless, went safely to the journey's end, and no injury was suffered by any one.

This is a universal legal principle which fits all those cases in which an irate patient seeks to penalize a physician for alleged negligence that has caused no actual injury.

2. Was the Harm of a Kind for Which the Law Allows Damages?

Suppose physician X negligently reduces the fractured femur of Y, a professional football player, so that an irreparable deformity results, with permanent shortening of the leg. As a result:

(1) Y has a deformed leg.

(2) Y is unable to play football during the coming season or engage in other gainful occupation, his loss of earnings amounting to $4,000.

(3) Y undergoes unnecessary pain and suffering.

(4) Y incurs physician's fees, nursing expense, costs for roentgenograms and miscellaneous charges including hospital bills, totaling $1,500, which he itemizes. He has to stay in the hospital six months longer than would have been necessary if he had been given proper care.

(5) Y's enforced stay in the hospital causes his fiancée, a wealthy Hollywood actress, to break her engagement because he no longer looks like Adonis.

(6) Y loses a $1,000 commission on a large insurance policy covering the members of the team which he was about to sell to the club but which he failed to sell because another insurance agent intervened during his enforced absence.

(7) Y loses the pleasure of attending the Rose Bowl football game, which he would have given a thousand dollars to see since he was a graduate of the University of Tennessee, one of the participating teams.

(8) Y loses four new tires from his automobile by thievery occurring at his home at a time when, had proper treatment been applied, he would have been well and on the premises.

For which of these items of damage can Y recover judgment against physician X?

Liability in tort extends beyond the damages recoverable for breach of contract, which are confined to those in contemplation of the two parties at the time they made their agreement. Courts are also inclined to allow a wider range of recovery for wilful or malicious conduct than for mere negligence.[6]

Many courts hold, in respect to negligence, that to be compensable a harm must be of the general type which an average prudent person would reasonably have foreseen as likely to flow from his tortious act. Other courts reach substantially the same result by holding that damages will be allowed only if the harm is of a character falling within the risk which the actor's duty of care is intended to protect against.

The exact harm need not be foreseen nor the overwhelming probability of its occurrence. Foreseeability of probable harm of such gravity as would impress a reasonable person with the negligence of the course of conduct causing it is enough.

Assuming proper proof, Y could recover for items 1 to 4 but not for items 5 to 8. The latter do not satisfy the requirements of foreseeability and so are held to represent "remote," rather than recoverable "direct," damage. More realistically, the latter constitute harms of a variety outside those which the law, as a matter of policy, feels X's duty of care should protect against. Each of the eight items referred to is an actual result of X's negligence, but tacitly involved, whether the courts openly face the problem or not, is the question: On whom should fall the risk of the particular loss? Intrinsically, the problem depends on equitable and social considerations; these in turn are given expression in definite rules of law as to "damages," to be uniformly applied to like transactions. A person is negligent toward another and therefore guilty of wrongful conduct only when a reasonably prudent person similarly situated would have foreseen that the proposed course of action threatened a likely harm of the same general variety as that which actually occurred. Thus, if the harm is of an obscure and extraordinary variety, ordinarily not flowing from such conduct, the danger of its occurrence could neither guide nor deter the action of a reasonably prudent man. In respect to such items of "harm," the law can reasonably say: "Here there is no adequate basis in culpability for casting the risk of loss on the actor." Even more emphatically may this be said when the actor, as in the case of the physician, is making a bona fide attempt to advance a social interest. Since the actor is thus free of fault, the rule applies that as between two innocent parties the risk of loss must lie where it falls.

Some courts achieve what they consider an equitable placement of this risk of loss by applying principles of proximate causation and holding items outside the normal type of damage to be "remote," rather than "proximate," results, and hence not compensable.

Certain other types of "harm" caused by negligent conduct are refused money compensation on quite different grounds. As an illustration, I cite the refusal of American courts generally to grant damages for "shock" or mental anguish when unaccompanied by actual injury. In such cases the courts disallow the claim, not because of its remoteness in expectation but because it is considered too speculative to permit of any fair mode of measurement. To permit a jury to enter variable verdicts, often on surmise, in the reparation of purely "subjective" harms opens, it is thought, too wide a door for fraud. It is, further, considered too radical a departure from the law's purpose of awarding money damages as actual compensation for harm capable of definite and certain measurement by objective standards.

3. Even Though the Defendant was Negligent, Did His Conduct Cause the Damage of Which the Patient Complains?

This question of proximate causation arises typically in one of several different connections.

(1) Assuming full proof of all the actual facts, has requisite medical evidence been offered to show a causal connection between dereliction and damage? If not, no recoverable damage has been proved.

Example.—A was rendered unconscious in a serious collision and was taken to a station house, where he was examined by a police surgeon, X. The latter was told of the accident, but after examining A, he entered a diagnosis of alcoholism and negligently failed to send him to a nearby hospital for such procedures as roentgen examination and lumbar puncture. Subsequently A died, and his wife sued X. X was admittedly negligent, and the damage was sufficiently shown, but all the medical testimony showed that the wound was so serious that it could not be said A would have had a chance of recovery even with the best of care. The trial court granted the defendant's motion for an instructed verdict (*Ramberg* v. *Morgan* [Iowa Supreme Court], 1928, 209 Iowa 474, 218 N. W. 492). Affirmed.

In such a case nothing could be gained by a new trial, for the evidence has been fully developed. Consequently, the appellate would reverse any judgment

6. "The rule universally applied in awarding damages for breach of contract is that the plaintiff may recover such damages as may reasonably be supposed to have been in the contemplation of both parties at the time they made the contract, as the probable result of the breach of it. In the great majority of cases, the courts have refused to apply this rule in tort actions. When the wrongdoer acts wilfully or maliciously, the rule usually applied is that he is liable for all the direct results of his acts; and, when the wrongdoer is merely negligent, he is liable for all the natural and probable consequences of his act, or failure to act." American Law Reports, Annotated, New York, Edward O. Thompson Company, 1927, vol. 48, p. 318.

erroneously awarded to the plaintiff in the trial court and enter final judgment for the defendant.

(2) Suppose full proof has not been made but that the plaintiff's evidence raises a clear inference that all four elements (duty, dereliction, direct causation and damage) are present. It falls short in failing to show what part of the damage is due to the defendant's negligence and what part to the original injury.

Example.—A sustained a fracture of the hip and got a bad result through X's negligence in letting him get up without confirming recovery by roentgenograms. A, in his action for damages, does not show what the degree of functional disability and deformity would have been with proper treatment. The proof is too speculative to support a verdict in such case, for A cannot recover for that part of the disability which would flow from such an injury even with good medical care. He can hold X only for the additional disability and deformity occasioned by X's negligence. In meeting his burden of proof on damages, A must therefore provide the standard of measurement by showing through expert evidence what the probable degree of impairment would have been with good ("average") treatment administered by a physician of the same class (general practitioner or specialist, as the case might be). (*Moore* v. *Tremelling* [U. S. Circuit Court of Appeals, Idaho], 1935, 78 Fed. [2d] 821.)

In this case, if the plaintiff has secured a verdict and judgment in the trial court, the appeal court cannot properly allow it to stand. Yet it appears that a meritorious case probably exists on which the facts have not been fully developed. Appellate courts are disinclined to cut a party off for lack of diligence in making a technical proof if they feel the deficiency can be supplied. Hence in such cases they are not so apt to reverse and render the judgment[7] (that is, to take the judgment from the plaintiff and make it final in favor of the defendant) as they are merely to reverse judgment and remand the cause to the trial court for a new trial. The plaintiff on retrial will often make good the deficiency pointed out to him and so prevail on the second trial.

It is interesting that a different result may follow if the physician's counsel, as he should, promptly files a motion for an instructed verdict after both parties have finished offering their evidence in the trial court. Such motion challenges the right of the plaintiff to go to the jury; it says in effect: You have not made out the "prima facie" case which your burden of proof requires in respect to the four D's (duty, dereliction, direct causation and damage), for you have not brought forward definite and certain evidence of any "damage." The plaintiff has had his "day in court" and is not entitled to "two bites at the cherry"; therefore, the trial judge properly must grant the motion.

Unless the plaintiff in his subsequent motion for a new trial can show some (other) extraordinary ground for setting aside the verdict, such as newly discovered material evidence not ascertainable earlier by due diligence, the trial court will enter judgment for the defendant, and the appeal court will affirm its action. That in courts of the same jurisdiction two opposite results on the same "actual" facts might thus occur affords revealing insight into the principles on which the present judicial system operates. First, the courts are "receivers" of evidence, not searchers for outside facts; second, cases are decided on "proved" facts, which may not be identical with the "actual" facts; third, every party is expected to show diligence in seeing that all "actual" facts in his favor are properly proved in court and fourth, many rulings on evidence are invoked only by the timely action of the affected party, whose failure of diligence may be controlling in regard to the final result of the litigation.

(3) What is the responsibility for injury when the defendant's negligent treatment results in the patient's shift to another physician, who in turn is negligent?

This situation presents a novel and important medicolegal question. In the first place, courts hold that when the first physician to treat a patient has been negligent it is not contributory negligence for the patient to decline further treatment by him, nor is the patient required to submit to mending or corrective procedures by one who has already caused damage by virtue of his negligent medical care.

Suppose that the patient carrying an injury inflicted by the initial physician places himself in the hands of a second physician. The original injury could be completely corrected by the second physician through the exercise of "average care," but instead he negligently omits to take indicated measures. The original injury persists and becomes more disabling by lapse of time. The patient sues the first physician for the total injury. The latter claims that the negligence of the second physician was a new and intervening cause serving to break the chain of proximate causation extending from the defendant's initial tort. He urges that at most he can be held only for such damages as would have ensued from the original negligent treatment had the patient subsequently procured competent medical attention.

This contention will not hold. The decisive question is whether the patient has done what the law requires of an injured person in taking reasonable steps to mitigate the original injury.

Most cases have arisen in respect to situations in which the original injury was inflicted not by a negligent physician but by the tort of another layman, for instance, in an automobile collision negligently caused by another motorist. The reasoning, however, is the same. In general, the courts hold that if an injured person exercises ordinary care in the selection of a physician or surgeon to treat his injury the original tort feasor is responsible for damages occasioned by mistake or error in treatment or for failure to bring about a cure.

But if a wound is inflicted not dangerous of itself, and it is apparent that death was caused by the grossly erroneous treatment, the original wrongdoer will not be responsible for the death; however, where the wound inflicted is mortal, the wrongdoer cannot acquit his liability by a plea of erroneous treatment. (See *Loveless* v. *Red Top Cab Co.* [Wash. Supreme Court 1930] 158 Wash. 474, 291 Pac. 344, 79 A L R at p. 373.)

It will be observed that the question may arise (as indeed it has), in cases not against physicians at all, when a defendant who is indicted for the crime of murder seeks exoneration on the ground that the negligent treatment of a physician, rather than the original wound, caused the death in question.

7. This is precisely what occurred in *Moore* v. *Tremelling, supra.* The judgment first obtained was reversed by the appeal court for insufficiency of technical proofs. Evidently the higher court felt that the evidence disclosed a meritorious case on which the evidence was not all in; hence it did not exercise its undoubted right to reverse and render and thereby to enter a final judgment in favor of the defendant. On a second trial, the plaintiff made good the deficiencies in his proof pointed out by the appeal court's opinion. The judgment he obtained was again appealed but this time was affirmed by the Federal Circuit Court of Appeals in *Moore* v. *Tremelling* (C. C. A. Idaho), 1938, 100 Fed. (*2d*) 39.

The principles apply equally to civil litigation. In *Horney* v. *St. Louis & N. E. R. Co.* (1911), 165 Ill. App. 547, the decedent received an injury to his back and side in a negligent collision of two of the defendant's cars. Six weeks later he was found to have a ventral hernia. Two operations were performed without effecting cure, and the decedent died. The trial court charged the jury thus:

> If you further find that, through some mistake of the said surgeons or of competent nurses and attendants, the infection resulted from and followed said operation, through no act of said Henry Horney, and thereafter said Henry Horney died on April 23, 1909, from said infection resulting from the wound made by said surgeons in said operation and the treatment thereof by the said surgeons and nurses, then the court instructs you that the said acts, mistakes or errors of the surgeons and nurses should be considered by you as a part of the immediate and direct result produced by the injuries received by the said Henry Horney in said collision.

The appeal court held that this charge was correct and that the jury verdict for the plaintiff was warranted by the evidence.

In *Caven* v. *Troy* (1897) 15 App. Div. 163, 44 N. Y. Supp. 244, evidence was offered to show that the decedent was improperly treated and that death otherwise would not have ensued. In reversing a judgment procured by the defendant, the appeal court said:

> The deceased, after the injury by the negligence of the defendant, was bound in good faith to take reasonable care of herself. If she did so, although the physician or physicians who attended her did not use proper treatment, or neglected her, in consequence of which the injury caused by defendant's negligence terminated fatally, the plaintiff was entitled to recover.

The question of interruption of proximate causation by subsequent negligence of the second physician came before the Supreme Court of Germany in 1921 in an intriguing case.[8] The facts were these: The plaintiff suffered a dislocation of his hip joint from a fall in the street. Physician X was called in and treated the pains as rheumatism of the knee, without diagnosing the dislocation. Fifty days later, the plaintiff quit X and went to Y, chief of the medical staff of a hospital. Y correctly diagnosed the dislocation by roentgen examination, but after an unsuccessful attempt to reduce it negligently limited treatment to massage, and the end result was a marked deformity. Thereupon, the plaintiff filed his suit against X, seeking to hold him for the end result. X, in turn, claimed that he was liable for only a small fraction of the injury, if at all; he stoutly maintained that the chain of proximate causation was broken by the subsequent negligence of Y. The intermediate appeal court of Hamm sustained this contention and held that X was liable for only part of the injury. The Supreme Court of Germany, however, overturned this ruling and held that X was liable for the entire end result; Y's conduct would break the chain of proximate causation only if it was so extreme as to constitute gross negligence.

I have not seen an actual American or English case with this fact situation, but there is every reason to believe that both English and American courts would arrive at the same result.

Thus, if a physician feels he has been negligent in the treatment of a patient whose disorder has proved to require more skill than he possesses, he should not rejoice at seeing the patient go from his care into unknown hands. He will do well to steer the patient, if possible, into the hands of a thoroughly competent acquaintance.

8. Decision of German Supreme Court in Civil Litigation, June 3, 1921, vol. 102, p. 230.

4. What Are the Principles on Which the Court Might Permit an Award of Damages?

Three distinct classes of damages are recognized by the courts: nominal, compensatory and punitive.

Nominal Damages (1 cent to $1).—The doctrine of nominal damages has had an interesting judicial history. At common law, an intentional assault on another's person, a trespass on his land or interference with his rightful possession of personal property was a breach of the peace and so a wrong to the state.[9] The rule thus arose that a plaintiff, in respect to such acts, could recover nominal damages without proof of actual damages. Quite a different rule obtained in respect to negligence. In actions on the case for negligence, it was held that actual damages must be proved by a litigant to make out any right of recovery. This distinction was sound in logic, for when one intentionally commits a trespass, as, for instance, a battery against another, he thereby invades an existing legal right of personality. But in the case of negligence, the law does not recognize a legal right in the plaintiff except to be free from negligent acts of another which do him actual harm: no damage, no wrong. The rule as to trespass has been followed by modern courts. Thus, in *Parker* v. *Kirkpatrick*, 1924, 124 Me. 181, 126 A. 825, the plaintiff sued the defendant, an employee of a store, who, suspecting her of shoplifting, questioned her and then put his hand in her pocket and found only an empty rouge box. Since no actual damages were proved, nominal damages were allowed. The same rule holds for breach of contract.

On the other hand, the modern decisions show a split of authority as to whether a trial court can award nominal damages to a plaintiff in negligence cases in which all elements of liability have been proved except actual damage. At common law, the prevailing party, even though he was awarded only nominal damages, could recover costs of court against the other litigant.[10] In modern England,[11] in the federal courts of the United States[12] and in two thirds of the American states[13] this rule has been changed materially. Also, it is now the better view that even nominal damages should not be awarded in negligence cases in the absence of proof of actual damage.

Compensatory Damages.—These are the substantial damages granted to compensate actual loss or injury. It has been held the jury may consider, when properly in evidence before them: (1) physicians' or surgeons' fees, nursing expense, cost of drugs, medicines, roentgenograms and the like rendered necessary by the defendant physician's dereliction, but excluding such items as were necessitated by the original sickness or injury (the burden is on plaintiff to separate the two); (2) value of the loss of time caused by the defendant's

9. Street, T. A.: Foundations of Legal Liability, New York, Edward Thompson Company, 1906, vol. 3, chap. 17.

10. Holdsworth, W. S.: History of English Law, Boston, Little, Brown & Co., 1924, vol. 4, p. 536.

11. 53 and 54 Vict. c. 44 (5); 51 and 52 Vict. c. 43 §§ 116 and 117.

12. 28 U. S. C. A. § 815.

13. McCormick, C. T.: Handbook on the Law of Damages, St. Paul, West Publishing Company, 1935, p. 94.

dereliction; (3) physical and mental pain and suffering directly resulting, and (4) when the injury is shown to be permanent, the effect on the plaintiff's earning capacity in the future and future pain and suffering, both physical and mental.

Punitive or Exemplary Damages.—The grant of punitive damages represents an anomalous doctrine of the American common law. By this means a civil court grants a quasipenal remedy by way of punishing and deterring a dereliction colored by fraud, malice or gross negligence of a shocking variety. The jury is given a wide latitude regarding the proper amount to award as punishment. Exemplary damages cannot be awarded when there has been no proof of actual damage. Punitive damages are really foreign to the concept of exact compensation on which tort law is bottomed, but in only a handful of malpractice cases of flagrant character has the remedy been sought or granted.

Example: A leading case on the subject is that of *Brooke* v. *Clarke* (Texas Supreme Court), 57 Texas 105, in which a physician ligatured a child's penis instead of the umbilical cord, causing the entire glans penis to come off. His defense was that Mrs. C., a neighbor, must have handed him the wrong thing to tie. A jury awarded punitive damages of $5,500. In affirming the judgment, Justice Gould said:

> The criminal indifference of the defendant to results was a fact which the jury were at liberty to infer from the gross mistake which he either made or permitted to be made, and the grievous injury which was liable to result and did result therefrom. If there was other evidence tending to negative any wrong intent or actual indifference on his part, still the existence or nonexistence of such criminal indifference was a question of fact for the jury, and was rightly submitted to them. If the conduct of the defendant in the discharge of his duty as accoucheur was so grossly negligent as to raise the presumption of his criminal indifference to results, we very greatly doubt whether it should avail to exempt him from exemplary damages for him to show that he had no bad motive, and that he acted otherwise in a manner tending to show that he was not at heart, indifferent. Where the act is so grossly negligent as to raise the presumption of indifference, evidence that in other matters connected therewith he had shown due care, and that actual indifference would have been in fact indifference to his own interest should, we think, not be allowed for any other purpose than to be considered by the jury in fixing the amount of exemplary damages.

5. Does a Judgment for Past Damages Bar a Later Action for Future Damages?

The answer is, generally, yes, for the patient is bound to assert his entire claim in a single suit (*Howell* v. *Goodrich*, 69 Ill. 556). This rule applies to all accrued damages, that is, damages already sustained together with all future damages and disabilities capable of proper proof, these latter being discounted to their present value.

6. Assuming That an Award Has Been Made Only as to Legally Compensable Items, Do the Courts Have Power to Set Aside a Jury Verdict Which Is Grossly Excessive?

The answer is yes. The decisions hold that this discretionary power of trial judges should not be exercised to set aside the award and grant a new trial unless it is "so grossly excessive as to show that it was actuated by passion, prejudice or partiality or was based on some mistake as to the law or the facts." The appellate courts have the power of reviewing an abuse of this discretion when excessiveness of the verdict is made the subject of appeal. If the appellate court concludes that the damages awarded are indeed excessive, it will often specify the maximum sum which could be called reasonable and affirm the judgment on condition that the plaintiff files a remittitur (waiver) of the excess. To accomplish this, the court enters an order which in substance provides:

> Judgment for plaintiff as entered below, is hereby reversed and the cause remanded for a new trial, except in event plaintiff files a remittitur of $—— in the trial court within thirty days of date, in which event judgment for the balance of $—— is hereby affirmed.

Thus, in *Hoffman* v. *Watkins* (Supreme Court of Washington), 1916, 89 Wash. 661, 155 Pac. 159, plaintiff had recovered $4,000 for an injury to the shoulder which disenabled lifting above the level of his shoulder. The joint was otherwise unimpaired, the shoulder was no longer causing pain and the plaintiff's earning capacity was not materially diminished. It was true that he had suffered much pain, inconvenience and considerable expense as a result of the defendant's negligence. The Supreme Court held the verdict excessive and affirmed the judgment on condition that the plaintiff file a remittitur for $1,600 within thirty days, failing which a new trial was to be awarded.

A solution of formaldehyde was inadvertently injected in lieu of procaine hydrochloride as an anesthetic for an operation involving removal of a cyst in the pelvic region. The patient suffered pain for about three months and alleged that the scar produced interfered with marital relations by causing pain in sexual intercourse. She recovered $12,500 in the trial court, a sum held, on appeal, to be excessive by $5,000 (*Hallinan* v. *Prindle* [Cal. App.] 62 Pac. (2d) 1075).

It is not the province of this paper to consider what awards courts of the several states have held to be excessive for different injuries. The intent of the foregoing sections is to point out the existence of a mechanism through which overgenerosity of a jury can be partially corrected and excessive awards pared down.

MECHANICS OF THE JUDICIAL PROCESS

I have endeavored to present a new approach to the problems of medical malpractice. If the rationale put forward enables the physician to hold the four controlling strings of "duty, dereliction, direct causation and damage" in his hands in place of myriads of tangled skeins, it meets its aim. If, admittedly, he is not yet at "omega," still he is respectably beyond "alpha" in understanding the problems of medical malpractice.

To progress further toward "omega," one must accept the challenge of the law in action. How does a case find its way into the courts, and what is the chronicle of its course as it proceeds to ultimate disposition? Although I recognize that specific procedures vary somewhat from state to state, I believe the following résumé will nevertheless afford an insight into the essential mechanics of the judicial process in all jurisdictions.

Initiation of an Action at Law; Service of Process and Filing of Pleadings.—Briefly, any aggrieved person, with or without cause, can file an action at law. He is the plaintiff, and the person sued is the defendant.

When the tort was committed jointly by several, he may join them all as parties defendant. The action is necessarily based on a pleading, called a "complaint," a "declaration" or a "petition," according to the legal usages of the particular state. This pleading sets forth the essential facts constituting the plaintiff's grievance or cause of action against the defendant. It is not to contain mere "legal conclusions" nor yet a statement of plaintiff's detailed evidence but rather the ultimate facts on which he relies.

A certified copy of this pleading is served on the named defendant within the jurisdiction in which the acting sheriff or constable holds office. This will be confined to his county. Furthermore, since a public officer of one state is a mere private citizen of any other, if he crosses into a sister state to effect personal service, his action is null and void, and any personal judgment entered on such service is likewise null and void and subject to either direct or collateral attack. If the defendant cannot be found in the jurisdiction, except in the exceptional cases, not applicable to the problem postulated, in which constructive service is given credit, the plaintiff must file his "personal" action in the jurisdiction in which he can find and serve the defendant. Service of a summons by a private person when in conformance with the law is as valid as if effected by a sheriff.

If it is assumed that there has been a valid service of process, the defendant physician will find set out in the body of the citation the "appearance day," several days to weeks removed, by which he must file an answer or suffer judgment by default. A well informed defendant, in filing answer, will observe the "due order of pleading" since "dilatory pleas," such as pleas in abatement, must be filed preceding pleas to the merits or else they are waived. Subject to his dilatory pleas and after them, defendant pleads in his answer, to be filed before appearance day, a general demurrer and general denial. By timely amendment before trial, he adds any affirmative defenses he has to offer. As I have explained, the office of the general demurrer is to admit, only for purposes of testing their legal sufficiency, the allegations of fact contained in the plaintiff's petition. The demurrer in effect says: Admitting for the moment that all the facts you have pleaded are true, you still have set forth no grounds for recovery in law. If the demurrer is sustained, the plaintiff must amend by pleading further until he does state a cause of action, failing which he will not be permitted to go to trial, and his suit will be dismissed. By a like mechanism, plaintiff can test out the sufficiency of any affirmative defenses the defendant may have filed. By appropriate motions to make definite and certain or by special exceptions pointing out deficiencies, the parties can require fuller elaboration of obscure allegations. Rules of pleading are intended to enable each party, in advance of trial, to learn the major contentions, though not the exact evidence, the other will rely on. The affected party is thereby insured due opportunity to prepare his legal position, muster his evidence and arm himself for his opponent's thrusts.

Pleadings thus put the parties "at issue" on opposed contentions and minimize surprise in the law's effort to give the litigants a fair "day in court." A party cannot prove what he has laid no foundation for in his pleadings.

Fundamentals of Trial; Functions of Judge and Jury. —At a varying interval after appearance day ("answer day"), the case is set down for trial. Either side by proper demand can exercise its right to trial by jury of all disputed facts. By mutual waiver of jury trial, either expressly or impliedly by mere failure to request a jury, the right can be conferred on the trial court to act as trier of facts as well as of law.

In selecting the jury, an initial panel of twenty-four men is brought into open court. Respective counsel have the right to question each member of the panel individually.

Any number of jurors can be "challenged for cause," as when they are shown to have formed an opinion in advance or to have a prejudice against the case or the type of litigation or one of the parties or are found to be related to one of the litigants. If the trial judge is of the opinion, after hearing the examination and questioning the prospective juror, that some fact exists which would prevent his passing on the testimony impartially, the court is required to dismiss him from the panel. Usually each litigant also has three to six peremptory challenges, enabling him to strike this number of prospective jurors from the list without assigning cause. The remaining twelve jurors, not eliminated, constitute the jury. It is their province to determine fact issues as submitted in the court's charge at the conclusion of the case after argument of counsel. In many states, questions are submitted seriatim:

> Do you find from a preponderance of the evidence (as that phrase has been defined herein) that on Aug. 15, 1937 Dr. X attended the plaintiff as her physician? Answer yes or no, as you find the case to be. Answer———.[14]

Jurors must not indulge in improper conduct during the trial or during their subsequent deliberations.

The trial judge has several important functions, among which are: (1) setting the case for trial and passing on motions for continuances etc.; (2) enforcing rules and order of court; (3) passing on pleadings; (4) ruling on admissibility of evidence and questions of law; (5) at the conclusion of the testimony, preparing a charge for the jury, submitting to them such disputed questions of fact as have been raised by the evidence (he introduces into the charge such definitions and instruction as the jury is apt to need in its deliberations); (6) passing on the legal effect of the answers ("findings of fact") contained in the jury verdict; (7) entering judgment for the entitled party after hearing any argument of counsel; (8) hearing motions for a new trial, and (9) reading the record prepared for appeal with a view to verifying the accuracy of the "statement of facts," which contains the transcript of testimony prepared by the court reporter, and the accuracy of the "transcript," which contains such material as copies of the pleadings, orders of the court, motions and the judgment entered in the case.

It is a cardinal principle of trial law that whenever evidence is offered which is believed to be inadmissible the burden lies on the offended party to offer timely objection. Rules of evidence are not self executing, and once testimony is in without protest the objection is waived. In like manner, a duty of diligence rests on

14. Most states still use the "general verdict" system, under which the jury is elaborately charged by the court after the close of testimony and brings in a verdict for the plaintiff or for the defendant without answering minute questions in their deliberations.

the affected party to file his motion for an instructed verdict if he believes at the conclusion of the evidence that his opponent has not met his burden of proof by "prima facie" evidence. By "prima facie" evidence is meant the minimal amount necessary to warrant a reasonable man's entering a finding of fact on it. If the trial judge has such a motion for an instructed verdict presented to him in due time, a question of law is raised for his decision, namely, the sufficiency of the evidence to make out a "prima facie" case and thereby the right of the affected litigant to go to the jury. It would be supererogation to permit a jury to enter a verdict on evidence so insubstantial that the court would be required to set it aside and grant a new trial or enter judgment for the opposing party notwithstanding the verdict ("non obstante veredicto"). Whenever a trial court grants a motion for an instructed verdict, the effect necessarily is to take the case from the jury.

In event a bona fide dispute of fact is present, this conflict in the evidence makes a case entitled to go to the jury. It must be remembered that it is the special province of the jury to resolve such conflicts by deciding what the facts actually are. This function carries with it the right to judge the credibility of the witnesses and to pass on the weight to be given their testimony. Considerable acrimony on the part of litigants often arises from exercise by the jury of its right to prefer one version and to reject another. Trial lawyers recognize that a jury legitimately can find a fact to be true from "a preponderance of the evidence" even though it is supported by the testimony of only one witness against the combined testimony of several opposing witnesses. One truth teller is worth several liars; one careful spectator is more to be trusted than a multitude of inefficient observers. Who is the truthful man and what is the qualification of the witness and his lack of bias the jury is entitled to decide.

In their closing arguments to the jury, counsel must not "go outside the record" to argue on facts not in evidence, and they must not indulge in inflammatory, prejudicial argument. Thus, it is a reversible error to comment on the fact that a defendant is protected by insurance or to compare the impecunious condition of a plaintiff with the "gigantic wealth of a selfish corporation" defendant. Such arguments defeat the guarantee of impartial, fair trial and if properly objected to afford ground for reversal in the appeal court. Many a hard won verdict has been taken from plaintiff and the case remanded for new trial because of injudicious inflammatory remarks to the jury.

The jury, too, must confine its deliberations to matters in evidence. To argue in the jury room that "Dr. X must be negligent because that's the very sort of thing Dr. Y did with my cousin Nelly when she lost her baby" or any other misconduct of the jury is basis for a new trial in the lower court or reversal on appeal. However, in the interest of finality, the testimony of jurors themselves in most cases is not admissible to show their own misconduct, the common law rule being that a juror cannot impeach his own verdict.

Once the jury has returned its verdict into open court, it devolves on the trial judge to study the fact findings disclosed therein, to hear any argument of counsel as to their legal effect and to enter judgment on the merits in favor of the entitled party.

RIGHT OF APPEAL

Either party may appeal from an adverse judgment by conforming to the pertinent statutory provisions which will be found in each state to regulate the right and to prescribe the steps to be taken. Appeals may be carried to intermediate courts as a matter of right in most states, but to the state supreme court only in the latter's discretion. An appeal court does not receive additional fact testimony on the merits. It looks for its facts and for the sufficiency of their proof to the verbatim record of evidence taken down by the court reporter in the trial court. The appeal court passes only on disputed questions of law.

Sometimes a malpractice plaintiff can make the case turn on a question of "lay" fact, provable by nonexperts: in such cases a defendant is vulnerable. More often the proof of duty, dereliction, direct causation and damage will involve facts about medical practices which can be elicited only from qualified experts. Such experts are interrogated largely by hypothetic questions.

In the latter, and more common type of malpractice case, it is the plaintiff who is apt to be vulnerable, for he carries a heavy burden in making proof of his "prima facie" case.

Familiarity with the four d's will enable one to expose the fatal weaknesses in many claims put forward. The physician should make it a habit to keep records, even if brief, of all his transactions, for they carry great evidentiary weight with a jury. One is entitled to offer properly kept records in evidence. Even if a jotted memorandum of a call or an incident is too informal to be received in evidence as a record made in the course of business, it has valuable uses. Provided it was made at or about the time the transaction occurred and at that time was known to be correct, it may be used to refresh the memory. In such circumstances, again, the jury is apt to consider the supported memory more trustworthy.

BURDEN OF PROOF IN MALPRACTICE ACTIONS

The plaintiff has the burden of proof on the four d's (duty, dereliction, direct causation and damage), and when he has finished his evidence, the physician should file a motion for an instructed verdict.[15]

Under a mere "general denial" of the plaintiff's allegations, without further pleading, a malpractice defendant can prove any facts which rebut the existence of one of the "four d's." If, on the other hand, the physician wishes to rely on such affirmative defenses as contributory negligence, assumption of risk (where applicable), the statute of limitations, prior compromise or prior adjudication ("res adjudicata"), the burden rests on him to plead these contentions and to prove them by a preponderance of the evidence. On such affirmative defenses, the defendant has precisely the burden of the plaintiff in producing a sufficient quantum of evidence to constitute "prima facie" proof. If he falls short, he is not entitled to go to the jury on these defenses and is in danger of having a verdict instructed against him.

The specific precautions for the physician to take, the availability of affirmative defenses and the strategy of trial are all subjects which can be elucidated with full effect only after the physician has gained the initial background which these papers have endeavored to supply.

15. It should be recognized, however, that malpractice need not be proved by direct and positive evidence but can be proved by a chain of circumstances from which the ultimate facts required to be established are reasonably and naturally inferable (*Gross* v. *Partlow* [Washington Supreme Court] 1937, 190 Wash. 489, 68 Pac. [2nd] 1934).

SUMMARY AND CONCLUSION (PAPERS I TO VI)

In article I, "The Legal Matrix of Medical Malpractice," I sought to trace the evolution of medical responsibility before the law. I was able to show a transition from absolute liability, without fault, in ancient times to the modern notion of limited responsibility based on culpability.

In article II, "Something of the Anatomy of the Law," I presented a comparative analysis of "judge-made law," under the headings of "civil common law," "criminal common law" and "equity." I endeavored to show what bearing, if any, each of the three has on the law of malpractice. An interpretation of common law, its strengths and its weaknesses, was proffered the reader. Other sources of legal materials were noted. It was my hope in this article to orientate the reader on the main sources of modern law.

In article III, "Forgotten Ancestors of the American Law of Malpractice," I selected at random one of the latest and most important American decisions on malpractice and showed how it could be traced back to English progenitors. A survey was made of the earliest origins of the modern English law of medical malpractice from which have sprung the American common law doctrines.

In article IV, "Growth of the American Common Law of Malpractice and a Proposed Formula for Testing the Legal Sufficiency of Malpractice Claims," I traced by ten year periods, from 1790 to 1940, in each state, the incidence of medical civil malpractice appeal cases. I presented statistical indexes for the ten year period 1930 to 1940, to make possible comparison of the material on medical malpractice appeal cases in the several states. Interpretations of the statistical data were offered. I proposed a universal formula, applicable to all malpractice claims, which consists of "duty + dereliction + direct causation + damage," and I showed that a malpractice plaintiff must establish the concurrent existence of all four components in order to make out a "prima facie" case entitling him to go to the jury. Failing to do so, in any particular, he is subject to having a verdict instructed against him in the trial court on timely motion of the defendant.

In article V, "Further About Duty and Dereliction," I unfolded the telescoped concepts of the formula previously offered.

In article VI, "Further About Direct Causation and Damage," it was my intent to give fundamental principles which radiate from these two terms of the formula. In this paper I also offered an abbreviated account of how a case gets into court and progresses to its ultimate disposition.

Throughout the successive papers, I have purposely indulged in a certain amount of repetition so that the fundamental legal concepts involved could be grasped more easily.

I have sought intentionally for a new rationale of malpractice which the physician might find useful. These studies, therefore, constitute a skeleton of thought rather than a catalogue of legal cases.

In seeking to show the legal evolution and magnitude of the malpractice problem and its amenability to a single controlling formula, one must not let orientation become overvoluminous. Like Bulstrode, in his preface to the opinions of Coke, published in 1657, I say: ". . . And now, my Lords, it is time for me to end, lest I should make the Porch too bigg for the House."

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

SPERTI IRRADIATION LAMP MODEL HI-41 ACCEPTABLE

Manufacturer: Sperti Electric Manufacturing Corporation, Beech and Kenilworth avenues, Cincinnati.

The Sperti Irradiation Lamp, Model HI-41, is described by the firm as a "Super-Tan Ultraviolet Lamp." The source of radiation is a mercury arc burner mounted in a cylindric reflector. An adjustable metal stand supports the burner and reflector. The lamp operates on alternating or direct current

The firm submitted the following data concerning the physical characteristics of the lamp:

Single tube floor lamp, no glass filter. Receiving surface 15 inches from tube, on a line perpendicular to opening of reflector.

	Microwatts per Square Centimeter
Ultraviolet, including line at 4,047 angstroms	462
Visible, including 4,358 (blue), 5,461 (green), 5,770-5,790 (yellow) and 6,907 (red)	232
Near infra-red, lines near 1 micron	53
Infra-red, beyond 1.4 microns	13,313
Total	14,060

RADIATION IN INDIVIDUAL LINES

One tube floor lamp, 15 inches from receiver. No filter.

Wavelengths in Angstroms	Microwatts per Square Centimeter
2,483	+
2,536	312
2,652	+
2,803	+
3,022	6
3,132	47
3,342	+
3,650, 54, 62	52
4,047	46
4,358	103
5,460 (5770, 5790)	102
6,907	27
10,140	36
11,287	17

(+ indicates trace)

TOTAL RADIATION [1]

In the Council's investigation of the lamp, the relative spectral intensities were found to be in fair agreement with the measurements reported by the firm's investigator. The total intensity of the ultraviolet radiation of wavelengths 3,132 angstroms and shorter was 187 microwatts per square centimeter at a distance of 24 inches (61 cm.) from the front edge of the reflector. Although this is only about one-half the value reported by the firm, it is nine times the minimum value required by the Council for acceptance as a sunlamp.

Sperti Irradiation Lamp, Model HI-41.

No radiation of wavelengths shorter than 2,804 angstroms was observed in the lamp examined by the firm's investigator. In the lamp examined by the Council, a trace of wavelengths 2,537 and 2,650 angstroms was observed, but it fell within the limits of tolerance for acceptance. Nevertheless it indicates the importance of controlling the thickness of the glass tubing used in making such lamps.

The radiometric measurements were supplemented by an erythema test, the observed time of exposure for a minimum

1. The data on total radiation were obtained by means of a suitable arrangement of a surface thermopile joined through a resistance to a ballistic galvanometer. This circuit was calibrated against a standardized carbon filament lamp. The data on the intensity of individual lines were obtained by means of a quartz spectrometer filter with a linear thermopile and a suitable amplifier. The data have been corrected for losses of reflection and absorption within the optical path.

perceptible erythema being closely the value calculated from the radiometric measurements.

In the erythema test, exposures of two, five, seven, ten, fourteen, seventeen and twenty minutes were made on the untanned inner forearm at a distance of 24 inches from the lamp (front edge of the reflector). Within an hour the twenty minute exposure appeared red, indicating overexposure. Within three hours all the exposures of seven minutes and longer appeared red, the seven minute exposure being very faint and disappearing shortly thereafter. The ten minute exposure was considered the minimum perceptible erythema, indicating a good performance of the lamp in ultraviolet emission.

The Council voted to accept the Sperti Irradiation Lamp, Model HI-41, for inclusion on its list of accepted devices.

Council on Industrial Health

MEDICAL SERVICE IN INDUSTRY

THE COUNCIL ON INDUSTRIAL HEALTH HAS APPROVED THIS ARTICLE AS ONE OF A SERIES ON MEDICAL SERVICE IN INDUSTRY WHICH WILL APPEAR FROM TIME TO TIME IN THE JOURNAL. MUCH OF THE MATERIAL ON CONSTRUCTION AND EQUIPMENT OF MEDICAL DEPARTMENTS IN SMALL INDUSTRIES HAS BEEN SUGGESTED BY DR. GLENN S. EVERTS OF PHILADELPHIA. THE FLOOR PLANS FOR USE BY LARGER CONCERNS HAVE BEEN CONTRIBUTED BY DR. C. F. N. SCHRAM, TENNESSEE EASTMAN CORPORATION, KINGSPORT, TENN.

C. M. PETERSON, Secretary.

THE INDUSTRIAL MEDICAL DEPARTMENT

QUARTERS AND EQUIPMENT

No physician will make appreciable reductions in the frequency and severity of illness and accidents causing lost time in industry unless he properly emphasizes preventive industrial medicine and surgery. The effective application of preventive medicine and surgery in industry rests squarely on intimate acquaintance with working conditions, processes, materials and men. The physician obtains such knowledge only by thorough and regular inspection of the plant. Although not strictly essential, practical experience in industrial units of all sizes suggests that an organized medical service located directly in the working environment is the best single method for developing this kind of medical supervision. In addition, it represents convenience, economy of operation and efficiency to the workman, employer and medical department personnel as well, especially where good correlation must exist between the medical service and the safety, personnel and employment departments.

Check List of Equipment for a Small Plant Dispensary

A. General furnishings

Sink	Foot pedal waste can
Instrument cabinet	Waste basket
Sterilizer	First aid kits
Dressing table	Storage cabinets
Leg rest	Paper towel rack
Cot	Adhesive rack
Stretcher	Record file
Mirror 10" × 12"	Scale

B. Instruments and supplies

Scalpels	Assorted bandages
Splinter forceps	Adhesive plaster
Tissue forceps	Cotton
Hemostatic forceps	Assorted gauze dressings
Bandage scissors	Assorted sutures
Iris scissors	Assorted splints
Surgical scissors	Assorted catheters
Loupe	Assorted jars and basins
Head mirror	Test tubes
Hand magnifying glass	Safety razor and blades
Syringes	Hot water bottle
Assorted hypodermic needles	Ice cap
Assorted surgeons' needles	Crutches
Needle holder	Tourniquet

C. Physical examination equipment

Stethoscope	Hemoglobinometer
Blood pressure apparatus	Wassermann tubes
Thermometer	Microscope
Otoscope	Simple urine testing outfit
Ophthalmoscope	Centrifuge
Nose and ear speculums	Dynamometer
Laryngeal mirror	Tuning fork
Spotlight	Reflex hammer
Tongue depressors	Flesh pencil
Snellen vision chart	Rubber gloves and finger cots

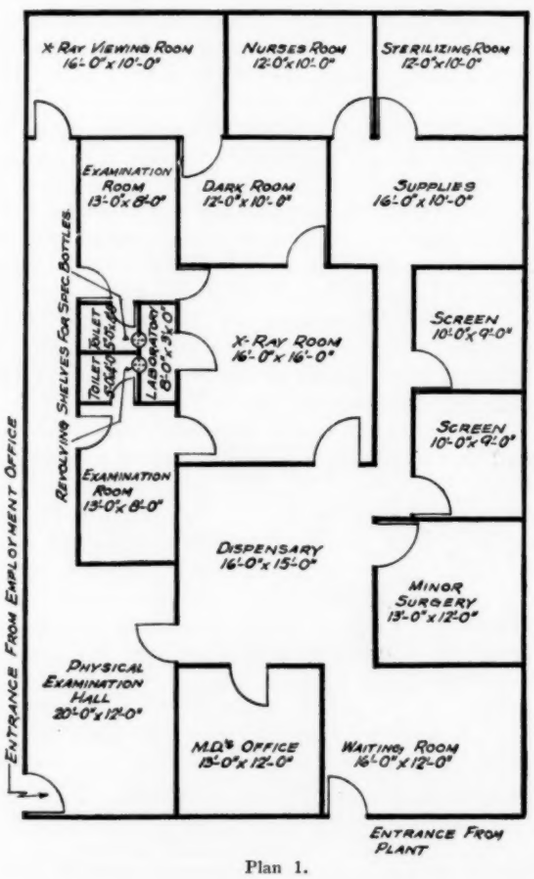
LOCATION OF PLANT MEDICAL DEPARTMENT

Location of the medical department in an industrial establishment will depend on the following considerations:

1. Access to natural light and ventilation.
2. Freedom from noise and vibration.
3. Accessibility to the greatest number of workmen.
4. Allowance for expansion.

SIZE OF LAYOUT

Good industrial medicine can be practiced in any location in the plant that can be kept clean and that provides privacy. However, repeated experience indicates that the medical unit commands respect only if careful attention is paid to suitable and efficient housing, appearance and equipment. A space 12 by 20 feet is recommended as a basic unit, divided into two rooms, one a little larger for general use. The smaller room can conveniently be set up as a center for physical examinations, record room and physician's office. Partitions should insure complete privacy. Some authorities recommend that space for a waiting room be included as a basic requirement, a need which becomes more apparent in the larger plant. The entire unit should be painted in light colors and kept spotlessly clean. The dispensary should be adequately heated. Proximity to toilet facilities is a great convenience. Suitable provision should be made for men and women if both are employed.


X-RAY VIEWING ROOM 16'-0" x 10'-0"
NURSES ROOM 12'-0" x 10'-0"
STERILIZING ROOM 12'-0" x 10'-0"
EXAMINATION ROOM 13'-0" x 8'-0"
DARK ROOM 12'-0" x 10'-0"
SUPPLIES 16'-0" x 10'-0"
REVOLVING SHELVES FOR SPEC. BOTTLES
TOILET
TOILET
LABORATORY 8'-0" x 3'-0"
X-RAY ROOM 16'-0" x 16'-0"
SCREEN 10'-0" x 9'-0"
SCREEN 10'-0" x 9'-0"
EXAMINATION ROOM 13'-0" x 8'-0"
DISPENSARY 16'-0" x 15'-0"
MINOR SURGERY 13'-0" x 12'-0"
PHYSICAL EXAMINATION HALL 20'-0" x 12'-0"
M.D.'S OFFICE 13'-0" x 12'-0"
WAITING ROOM 16'-0" x 12'-0"
ENTRANCE FROM EMPLOYMENT OFFICE
ENTRANCE FROM PLANT

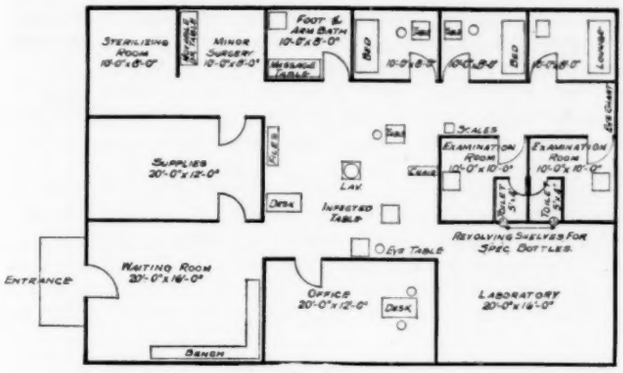
Plan 1.

Permanent installations should include a sink with hot and cold water connections. It has been found convenient to have the sink provided with a suitable drainboard over which brackets may be placed to support sterilizing equipment. Preliminary

planning should dictate the placement of electrical outlets for lamps and other special equipment. Good overhead general lighting should be installed.

EQUIPMENT

The plant physician should, whenever possible, select his own equipment and supplies. Because of hard usage, good quality

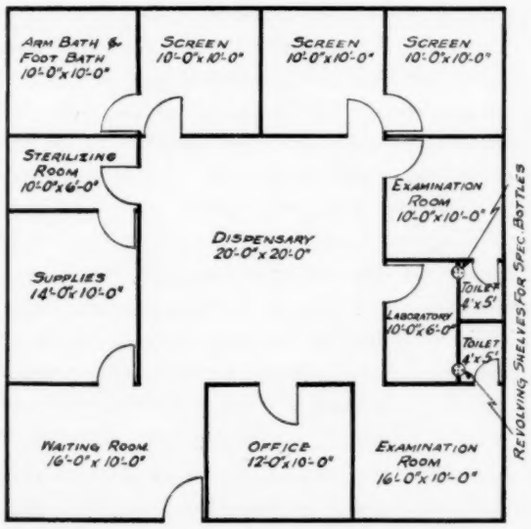


Plan 2.

is essential. Supplies need be neither large nor expensive. The accompanying check list of furnishings, apparatus and supplies has been suggested as a guide to reasonably complete equipment for a small plant dispensary. Additions or substitutes will depend mainly on the character of demands made on the medical department and on the personal predilections of the physician.

REQUIREMENTS IN THE LARGER PLANT

The requirements of a medical department in larger industrial establishments can ordinarily be satisfied by increasing the size of the basic units or by multiplying their number. No universally applicable formula has been devised from which it is possible to relate the necessary space or equipment to the number of workmen employed. As a rule, elaborate installations are seldom justified, especially if competent and approved hospital, laboratory and other consulting services are conveniently available. No major equipment or service should be installed without benefit of special advice in order that competent con-



Plan 3.

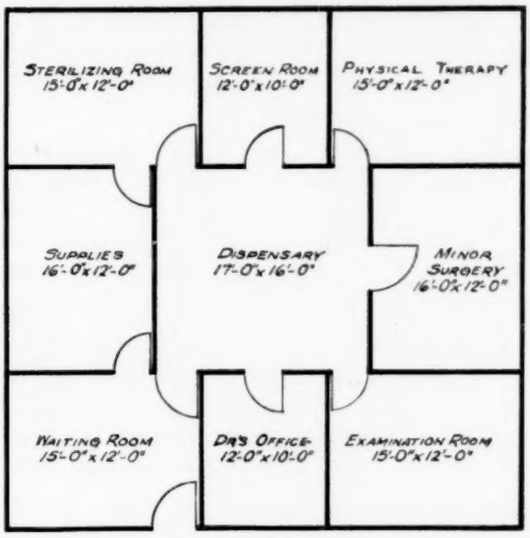
sideration be given such factors as expectable use, space requirements, convenient arrangement and employment of necessary, qualified personnel.

There are a few other factors which must be considered in locating the medical department in a large plant. It is frequently desirable to place the unit as near as possible to the employment and safety offices. A ground floor site is indispensable unless elevator service is available in the building.

The floor plans presented here are intended for industries of substantial size. All have features in common. Each has a central dispensary and waiting room. Screen rooms are provided for dressings or other procedures which require strict privacy. Supply rooms are intentionally commodious since they can never be too large. Each plan also provides a minor surgery, a sterilizing room and a physician's office.

The first plan represents an industrial medical department large enough to take care of 5,000 employees in an ordinary industry, the service to include preemployment and periodic physical examinations as well as dispensary work. In this arrangement, rooms for physical examinations are separated from the dispensary proper, but this disposition allows use of the same personnel. The x-ray room in this plan is central to both the physical examination suite and the dispensary. The room for viewing roentgenograms is sufficiently large for files and is readily accessible to the physical examination rooms.

The second plan represents an arrangement adapted to a medical department in a factory employing 2,500 people, of which 800 are women. The department is designed primarily for dispensary service but is adaptable for examinations as well. A long wide hall between screen rooms and examina-



Plan 4.

tion rooms is useful for testing vision. In this plan a toxicologic laboratory has been incorporated. General equipment has been localized.

The third plan is a more compact arrangement, emphasizing dispensary service and minor surgery. One side of the dispensary can be used for 20-foot vision testing.

The fourth plan is a modification of plan 3 and is designed for dispensary service only. This disposition of rooms and equipment is recommended because of compactness and consequent saving of steps.

COST OF CONSTRUCTION AND EQUIPMENT

Industrial medical departments in small plants have been constructed and equipped for as little as $150. More commonly, expenditures of $350 and up are necessary for suitable space and facilities. No estimate can be supplied about the cost of large industrial medical departments.

The First Writer on Psychology.—In the period 25 B. C. to 50 A. D., Aurelius Cornelius Selsus, who was not a physician but a scholar and an observer, enters the picture of psychiatry. He was a recorder of medical thought in Roman times of the rulers Tiberius, Caesar, and Caligula; his writings were of encyclopedic dimensions with sections on nervous disorders and an exposition of the known types of insanity. He has been called the first writer on psychology as such.—Lewis, Nolan D. C.: A Short History of Psychiatric Achievement, New York, W. W. Norton & Co., Inc., 1941.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 5, 1941

ANCIENT PROPAGANDA AGAINST ANIMAL EXPERIMENTATION REVIVED

Recently some of the newspapers in the Hearst chain have featured a column entitled "In the News"—written, it is understood, by Mr. William Randolph Hearst himself—which was devoted largely to propaganda against animal experimentation. Most of the material was a quotation from a speech by Dr. Walter R. Hadwen, who is referred to as a "leader in his honorable profession." Actually this speech was made in Los Angeles on June 16, 1921, more than twenty years ago. Hadwen was then the president and secretary of the British Association for the Abolition of Vivisection. He had published a pamphlet on "The Anti-toxin Treatment of Diphtheria," in which the opening sentence read "The Anti-Vivisectional interest attaching to the question of the use of Diphtheria Anti-Toxin serum lies in the fact that cruelty of a grave character is practiced, mainly upon horses, in order to obtain this particular nostrum." Think of the type of intellect that would refer to antitoxin against diphtheria as a nostrum! If there is any one fact fully established and fully accepted by every reasonable person today, it is the efficacy of antitoxin against diphtheria. Associated with the statement by Hadwen, which it is understood was made available to Mr. Hearst through the courtesy of one George Starr White, were a number of pictures purporting to illustrate tortures perpetrated on animals in the name of experimental medicine, accompanied also by quotations from the same George Starr White in which he describes scenes in a New York laboratory. Here are the facts about George Starr White, taken from "Fads and Quackery in Healing":

> Whenever the irregulars in the healing art assemble for the purpose of exchanging trade secrets and telling each other how good they are, George Starr White, M.D., F.S.Sc. (Lond.), D.C., Ph.D., LL.D., Los Angeles, is among those present. He was "second vice president" of the Allied Medical Associations in 1918. He is also opposed to vaccination and helps out the American Medical Liberty League. White was graduated from the New York Homeopathic Medical College when he was forty-two years old. He played with Abrams' spondylotherapy and also pushed Fitzgerald's "zone therapy." Then he developed the fancy-name system that combines a lot of hocus-pocus—it seems one diagnoses disease by a "sympathetic Vagal Reflex." To elicit the said phenomenon, the patient faces east or west and his abdomen is thumped until a dull area is found. Then colored lights are thrown on the abdomen and the thumping is continued. A ruby and blue light with associated dulness means one thing and a green light combination another. That is to say, Dr. White says so; really, it doesn't mean anything. Once Dr. White took a flier in the patent medicine business. The F.S.Sc. (Lond.), with which he is endowed, means "Fellow of the Incorporated Society of Science, Letters, and Arts of London, Ltd." Lots of people who play the same game as White have the same letters. The cost of the elegant diploma is about $5. Sometimes White also puts after his name D.C., Ph.D., LL.D. No one knows where he got those. The method was given a beautiful send-off in Mr. Macfadden's *Physical Culture* magazine by Dr. Edwin F. Bowers in February 1918. Dr. Bowers is not a doctor of medicine, and the only M.D. he has is the one Macfadden gives him. Strange how the same names recur again and again in these stories of the ghoul-like activities of the harpies who live by exploiting the sick!
>
> In 1925, White produced the last word in this fancy business, the Rithmo-Chrome and Duo-Colors. He has a lot of books to sell and a lot of apparatus. For instance, in his latest announcement, Figure 10 shows a "person sitting on a Filteray Cushion and receiving Filtered Ultrared Rays while doing Rithmo-Chrome breathing and inhaling Oxygen-Vapor or Medicated Vapor and at the time getting therapeutic effect of the magnetic forces of the earth, as he is grounded and facing exactly north and south." If the Duo-Colors are added to this, Dr. White affirms, the patient is certainly getting "Natural Methods Condenst." And if he isn't getting that, what is he getting?

Obviously George Starr White is a quack without any scientific standing, whose opinions on modern medicine are wholly without value.

These effusions against animal experimentation are particularly unfortunate at this time when the nation is seriously concerned with keeping abreast of the rest of the world in problems of national defense. The protection of the sailor in the submarine, of the pilot in the airplane, of the soldier in the chemical warfare service, of hundreds of thousands of men in camps and on ships who are devoting their lives to the defense of the nation depends on the knowledge to be derived from experimentation on animals. The lives of the children of today, who will be the nation's defenders of tomorrow, are saved from the holocausts of infectious disease by the results of experiments on animals. The very lives and health of the vast number of domestic animals used for the industry and the food supply of the nation are protected and saved by the results of experiments on animals. The pets, truly beloved by those who keep them in their homes, are protected by experiments on animals. Yet a few narcissistic, misguided, unthinking seekers for notoriety, most of them women who were once famous in the theater and who perhaps seek to regain the public notoriety and prestige which once were theirs, endeavor to thwart and to inhibit scientific advancement.

Today throughout the United States experimentation on animals is under scientific control. The animals used for such purpose are well fed and are given care superior in many instances to that extended to under-

privileged children in the same communities. Animals which otherwise would have been left to roam the streets to starve and to be found, as they are often found, lying dead from motor vehicle accidents, make their contribution under ideal circumstances to the advancement of the science of care of animals and man. It is inconceivable that any legislature in any state or that the Congress of the United States will permit itself to be cajoled by the personal appearances of these simpering advocates, bewildered by the folly of their ridiculous arguments or misguided by the resurrection, through Mr. Hearst's unthinking paragraphs, of the ancient and maundering lucubrations of the senile Hadwen or the charlatan White.

DOCTORS FOR BRITAIN

Some months have passed since the President of the United States first requested the American Red Cross and a number of medical organizations, including the American Medical Association, to aid the American Red Cross in its effort to comply with the request of the British Red Cross for one thousand physicians to reinforce the British medical services, including the Royal Army Medical Corps and the Emergency Medical Service. In pursuance of this project, extensive announcement was made in the public press. From time to time application blanks have been sent to physicians in the United States who seemed to meet the qualifications. By June 23, 1,343 inquiries had been received; 643 applications had been mailed in response to the inquiries received; 69 physicians who applied had been rated as professionally unqualified; 67 had been pronounced professionally qualified, but of these 2 have withdrawn their applications; 52 applicants are awaiting the decision of the committee, and 33 have been pronounced eligible for a visa. Fifteen applicants are now in process of having physical examinations completed and 17 have been pronounced physically fit. Actually 2 men have been granted United States passports and 15 have reached the stage where they are awaiting passports. The total figure of physicians apparently ready to go or likely to be made available is about 65, with an additional 25 still in process before the committee. This will mean that by the middle of July approximately 90 men will be the response to the request.

Since the announcement was first made there has been some question about the eligibility of married physicians, but a statement has just come from Great Britain authorizing their acceptance. In the Royal Army Medical Corps they will have the same status, salary and allowances as unmarried men except where the total pay for British married officers of the same rank exceeds that for American single men; in such cases the higher rate will then be paid. For the Emergency Medical Service, married men will be accepted on the same terms as single men.

Recent instructions received by the American Red Cross state that native born American citizens who have had their medical training in Great Britain may apply for this service. In each case the qualifications will be passed on by the proper British medical authorities.

The total response to the request from Great Britain is not especially gratifying. In explanation, it may be pointed out that American medical publications and organizations have been repeatedly informed that our own need for physicians is considerable and will be met only with the greatest of difficulty. Already one medical school has announced an increased enrolment of 10 per cent to meet the increased demand for medical men. However, increasing enrolments in medical schools will not make additional physicians available until six years from now. The news from abroad and from Washington seems to indicate constantly the threat of the entrance of our own nation into the war. This also has unquestionably influenced many physicians to hesitate about answering the British appeal.

The opportunity to serve in the far-flung reaches of the British Empire, in China, India, Australia or other British territory is one which is likely to appeal to young medical men without dependents interested in medical experience and adventure. The American Red Cross and the special committee of the Division of Medical Sciences of the National Research Council are continuing their efforts to meet the request for doctors that has come from Great Britain.

TRANSCUTANEAL VIRUS INFECTIONS

Successful inoculation of laboratory animals by the application of a mesodermotropic virus to unabraded skin surfaces has been reported recently by Shaughnessy and Zichis [1] of the Illinois Department of Health.

The skin has been established as an effective barrier against most bacterial infections by earlier experimental pathologists. The possibility that this barrier may be much less effective against ultramicroscopic viruses, however, has been tacitly assumed by many clinicians. It is a common practice, for example, to administer antirabic vaccines to persons whose hands have been licked or otherwise contaminated with the saliva of rabid dogs.

This clinical practice is justified, as was shown about a decade ago by Bauer and Hudson,[2] who rubbed yellow fever virus on the unabraded skin of rhesus monkeys and were thus able to inoculate these animals with yellow fever. Findlay and Stern [3] sub-

1. Shaughnessy, Howard J., and Zichis, Joseph: J. Exper. Med. **72**: 331 (Oct.) 1940.
2. Bauer, J. H., and Hudson, N. P.: Am. J. Trop. Med. **8**: 371 (Sept.) 1928.
3. Findlay, G. M., and Stern, R. O.: J. Path. & Bact. **43**: 327 (Sept.) 1936.

sequently showed that the virus of lymphocytic choriomeningitis is also infectious if similarly applied. Of the 2 rhesus monkeys thus tested by them, 1 developed a typical febrile reaction while the other showed no demonstrable symptoms. Serum from both monkeys, however, contained specific virucidal antibodies when tested on the fifteenth day.

These tests, however, are not acceptable evidence of normal skin permeability, since an attempt was not made to exclude the possibility of the monkeys scratching the virus into the skin or of transferring it to mucous surfaces. Shaughnessy and Zichis therefore repeated skin inoculation tests under meticulously controlled conditions. In their experiments the virus was dropped on the unabraded normal skin surface of an inaccessible region of the body and the area protected against subsequent abrasion by a screw-top screen capsule held in place by means of an adhesive tape girdle. Control animals were similarly inoculated but without the screen protection.

The material used for their transcutaneal tests was a highly virulent strain of lymphocytic choriomeningitis originally isolated by Rivers and Scott.[4] This strain had been maintained for numerous generations by serial intracerebral passage in guinea pigs. The strain is of high virulence; 0.25 cc. of a 1 per cent suspension of the brain of a guinea pig dying of this infection, if injected intracerebrally into a normal guinea pig, will cause a sharp rise of temperature after an incubation period of from twenty-four to forty-eight hours with collapse, subnormal temperature and death on the sixth to the eighth day. In their percutaneous inoculation tests from 0.5 to 1.2 cc. of a 10 per cent suspension of guinea pig brain soon after necropsy was carefully deposited through the parted hair on the lateral dorsolumbar region of adult guinea pigs, without the pipet or the syringe touching the skin. The skin was carefully examined with a hand lens both before and after the virus had been deposited and during the subsequent febrile stage. In no guinea pig of their series was any wound, abrasion or macroscopically demonstrable cutaneous irritation noted. The most that was observed was a slightly matted hair, the skin itself being free from visible scaly or dried material.

Of the 57 adult guinea pigs thus tested, 38 (67 per cent) had fever after an incubation period of about five days. All these febrile guinea pigs died with typical virus symptoms between the eighth and twelfth days. In all cases the cause of death was confirmed by intracerebral inoculation of necropsy material into mice, supplemented by specific neutralization tests with virucidal antiserums. Although the Chicago experimenters realized that minute cutaneous abrasions, not visible with the hand lens, might have been present on their animals, they felt justified in concluding from their evidence that a highly virulent strain of lymphocytic choriomeningitis virus is capable of penetrating the presumably intact normal skin of adult guinea pigs at a sufficient rate and in sufficient quantities to cause a lethal virus infection.

Whether or not transcutaneal infection would tend to explain the puzzling epidemiology of lymphocytic choriomeningitis was not discussed, nor was normal skin permeability to a low virulent or avirulent strain of the same virus tested by the Chicago investigators.

4. Rivers, T. M., and Scott, T. F. M.: Science **81**: 439 (May 3) 1935.

MEDICAL AID FOR BRITAIN

The British Ministry of Health some months ago sent to the American Red Cross and released for general circulation a statement regarding the shipment of medical supplies and personnel to Great Britain. This statement from the British Minister of Health follows:

> We fully recognize that the American Red Cross holds a predominant position in all matters affecting doctors, nurses, hospitals and medical supplies, both because of the conventions under which it was established, and because of its very widespread organisation. For these reasons the Ministry proposes, in the future, to send all requests for medical and nursing personnel, hospitals and hospital equipment and medical and surgical equipment and supplies through the British Red Cross to the American Red Cross. Consequently, from this date, no requests for these kinds of aid shall be forwarded to any other American organisation. Furthermore, offers of American aid which fall within the above defined limits will be referred by the Ministry through the British Red Cross to the American Red Cross for consideration and approval.
>
> You will, of course, appreciate that there exist current and previously accepted commitments between the Ministry and other American organisations which cannot be withdrawn. It is our intention to complete our existing commitments with these organisations insofar as they do not conflict with the above stated position.
>
> I am anxious further to emphasize that no request will be put forward by the Ministry that is not a request to meet a real need and to make up deficiencies whether of personnel or material which either cannot be met at all or where, as is the case of surgical instruments, production is extremely slow.
>
> I trust the procedure I have outlined is one that will meet with the concurrence of the American Red Cross, but I am anxious to say that, important as it is that a clear and simple procedure should be adopted, it would not be right that I should close this letter without expressing our most sincere, and warm appreciation to the American Red Cross for the generous assistance it has afforded us in the past and for its equally generous offer to continue to help.

The statement is again published at this time because of the numerous letters that are received in the headquarters of the American Medical Association regarding solicitation from various organizations which are endeavoring to collect surgical instruments, medical supplies, drugs and funds as an aid to Great Britain.

The information available indicates that at this time the general solicitation and shipment of medical, surgical and hospital supplies and equipment, unless in response to specific requests to the American Red Cross,

is likely to result in duplication, misuse of valuable shipping space and the sending of unnecessary articles. The solicitation of funds is of course a matter wholly between the contributor and the organization making the solicitation.

Physicians should understand that space in ships going to Great Britain is at a premium. Certain types of foods and goods cannot be shipped at all because the space they require is beyond their value. Recently the United States Post Office made available information to the effect that after June 28 bona fide unsolicited gift parcels, whether or not they contain rationed foods sent from one individual in this country to an individual in the United Kingdom, may not exceed the weight limit of 5 pounds or contain more than 2 pounds of any one foodstuff. The maximum weight of 5 pounds is also applicable in the case of parcels containing other materials than foodstuffs. Any one desiring to send larger quantities must first arrange for some responsible organization in the United Kingdom, formed for charitable or similar purposes, to be the recipient of such gifts.

The information here given is not intended to discourage any aid which any well intentioned person may wish to proffer. Well directed and well organized efforts, however, are far more likely to yield maximum returns than haphazard and random solicitations of materials or the sending of unsolicited gifts.

Current Comment

VITAMIN INSPIRED MUSIC

At a recent concert the Chicago Symphony Orchestra performed a hitherto unheard composition bearing the modest title "Two Symphonic Impressions." The composer, Carl Eppert, is a native of Indiana, at present a resident of Milwaukee and winner of the first prize in a competition offered by the Orchestral Association in connection with the Golden Jubilee of the Chicago Symphony Orchestra. The award was made by John Barbirolli, conductor of the New York Philharmonic-Symphony Orchestra; Eugene Ormandy, conductor of the Philadelphia Orchestra, and Deems Taylor, composer and critic. Of particular interest is the fact that the music was inspired by the vitamins. According to the program notes the composition was originally intended as music for a ballet whose choreography was based on a battle between preventive medicine and disease. The introduction was to be descriptive of the discovery of vitamins; one portion was to represent vitamin A and another the antirachitic vitamin D. The listener was asked to envisage a rachitic cripple restored to health and shapely legs by the administration of the proper vitamin. In the past, creative artists were preoccupied with the passions, struggles, triumphs and defeats of men. Perhaps there have been symphonies and concertos before now which reflected disease. Probably, however, this is the first time one of the most abstract of all arts has chosen for its inspiration the discovery of vitamins and the conquest of deficiency diseases.

STATE SOCIETY PURCHASES SOUND MOVIE EQUIPMENT

A progressive step in extension of medical education to both the medical profession and the public was recently taken by the Medical Association of Georgia when the association ordered the purchase of ten movie sound-on-film projectors, loud speakers with extension cords, screens and additional equipment with a view to supplying each of the councilors of the association with such an outfit during his incumbency. The Medical Association of Georgia plans the purchase of a number of health films which can be used to augment the film library of the state department of public health. This material will make it possible to carry visual education by this technic to the medical societies throughout the state and also to public audiences, the service also aiding the establishing of a better understanding between the medical profession and the public.

PARAFFINING OF PAPER MILK CONTAINERS

Sterilization of the surfaces of paper containers for milk presents a particular problem, since methods used for glass milk bottles are not generally applicable to paper containers. Recently Moss and his associates [1] have reported pertinent data on the temperature and time combinations of a paraffining procedure that provides adequate bactericidal treatment of paper-board. These investigations indicate that the bactericidal efficiency of the paraffining process increases considerably with comparatively small rises in temperature. Thus, a mean 99 per cent reduction of an appropriate test organism due to paraffining was obtained in about ten seconds at 180 F., thirty-five seconds at 170 F. and four minutes at 160 F. For the paraffining of paper containers in this country the temperature of the paraffin is usually 160 to 180 F. As pointed out by the investigators, if the paraffin process is to provide the bactericidal treatment for the surfaces of paper containers, use of the higher temperature seems necessary unless the commonly used immersion time is prolonged. Should the use of higher temperatures prove impracticable it might be necessary to subject the containers to separate bactericidal and waterproofing treatments. A manufacturer of food containers in this country has supported a fellowship at one university for research on paper containers and, at another, for the study of the bacterial lethal effect of hot paraffin.[2] Effort is being made to provide paper food containers that are as satisfactory as possible from the hygienic as well as other points of view.

1. Moss, F. J.; Thomas, R. C., and Havens, M. K.: Bactericidal Effect of the Paraffining of Paper Board for Paper Milk Containers, Pub. Health Rep. **56:** 944 (May 2) 1941.

2. Hull, C., and Paddock, M.: Research Supported by Industry Through Scholarships, Fellowships and Grants, News Edition, Indust. & Engin. Chem. **19:** 523 (May 10) 1941.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

EXAMINATIONS FOR TUBERCULOSIS

ROENTGENOGRAPHIC FINDINGS OF 41,809 INDUCTEES AND 9,541 NATIONAL GUARDSMEN IN NEW YORK CITY

HERBERT R. EDWARDS, M.D.
Director, Bureau of Tuberculosis
AND
DAVID EHRLICH, M.D.
Captain Medical Reserve Corps, U. S. Army; Instructor in Radiography, Bureau of Tuberculosis
NEW YORK

The problem of tuberculosis in the armed forces has long been known but it has been especially emphasized since our experience in the first World War. Chest physicians and health and welfare organizations interested in tuberculosis control have consistently advocated a routine chest roentgenogram of all men entering the armed services. This interest has crystallized itself into definite proposals to the Army and Navy within the past year or so, when it became obvious that this country was planning to launch a preparedness program and to adopt a selective service and training act.

In an address before the American College of Physicians delivered April 1, 1940 Col. C. C. Hillman [1] said in part: "Since it is important for the individual as well as for his associates and for the pension rolls to exclude cases of pulmonary tuberculosis from military service, routine chest roentgenograms, or routine skin tests with roentgen ray examination of positive reactors, will *probably* (italics ours) be employed to eliminate cases of tuberculosis that have not been detected by physical examination." It will be noted that the acceptance of a routine roentgenogram of the chest was not definite at that time.

In the early part of 1940 the National Research Council [2] set up its committee on the various medical sciences to correlate the best thought of leaders throughout the country for the benefit of the federal services. A subcommittee on tuberculosis of the General Committee on Medicine was organized. This committee began its deliberation during the summer of 1940 and offered suggestions and recommendations to the Army and Navy concerning diagnostic methods and procedures for the control of the disease in the military services.

From the outset the importance of a routine chest roentgenogram was emphasized and accepted in principle by the medical personnel of both services. The Army was requiring a chest roentgenogram in the examination of commissioned personnel, and the Navy was requiring the same for enlisted as well as commissioned men. It would have been almost impossible for the Army to acquire and set up facilities for the routine roentgenographing of all men inducted through the Selective Service Act immediately after the act went into effect.

One of the first problems considered by the subcommittee on tuberculosis of the National Research Council was the terminology of the Army Manual as it related to tuberculosis and chest diseases. Certain revisions were recommended and accepted and are now incorporated in Mobilization Regulations No. 1-9 as of Aug. 31, 1940. While these regulations did not require a chest roentgenogram as a routine part of the examination of the inductee, they did define in detail the general character of minimal or arrested lesions by roentgenogram that would be permissible under Class 1-a.

As a result of increased urging by official and voluntary health agencies that were willing to set up facilities locally to provide such service, a directive from the Adjutant General's Office of the U. S. Army under date of Oct. 28, 1940 stated in part:

> 3. At induction places other than at Army stations, arrangements with state or civilian roentgenological laboratories will be made at the earliest practicable date. When it is feasible to supply these laboratories with government films, timely requisitions will be made to the Surgeon General by corps area and department surgeons. . . . Payment for these films and for the services of civilian roentgenologists may be made, however, by corps area surgeons from procurement authority.
>
> 4. Should belated reports reveal the presence of defects disqualifying under the provisions of Mobilization Regulations 1-9 in individuals who have been inducted and forwarded to reception centers or training stations, such reports will be transmitted to these respective stations and action taken to effect the prompt discharge of such individuals on certificates of disability.

Thus this order provided an opportunity for local agencies to set up and operate a roentgenographic service for men inducted and to be compensated by the government until such time as the Army could assemble its equipment and assume full responsibility. Unfortunately, only a few local agencies in the country were aware of this opportunity or were sufficiently interested or equipped to conduct routine roentgen examinations for the corps area commanders.

Further emphasis on this problem is to be found in an article by Ramsey Spillman [3] on the value of radiography in detecting tuberculosis in recruits. His analysis of statistical data from the U. S. Veterans' Administration indicated that the cost to the government of a case of tuberculosis in a veteran of the World War was about $10,000 per man to date. Also that within the next five years the total cost of service connected disability payments would reach the staggering total of approximately one billion dollars. Major A. A. deLorimer, addressing the 1940 annual meeting of the Radiological Society of North America, quoting Spillman's article, stated in part that the Army was

1. Hillman, Charles C.: Medical Problems Encountered in Military Service, Ann. Int. Med. **13**: 2205 (June) 1940.
2. Cushing, E. H.: The Health and Medical Committee, War Med. **1**: 66 (Jan.) 1941.
3. Spillman, Ramsey: The Value of Radiography in Detecting Tuberculosis in Recruits, J. A. M. A. **115**: 1371 (Oct. 19) 1940.

arranging to use the roentgen ray extensively to minimize and prevent a repetition of such a situation.

Councell,[4] in a recent report on war and infectious disease, stated that between April 1, 1917 and Dec. 31, 1919 there were 27,274 primary admissions of tuberculosis to the U. S. Army, an annual rate of 12.2 per thousand. She pointed out that there were lost 2,636,722 days from active duty, a noneffective rate of 3.7 per thousand. She also stated that: "Up to March 1918 a total of 1,500,990 men had been reexamined and 9,648 recommended for discharge for pulmonary tuberculosis, a total of 8 per 1,000. In the period of demobilization, from November 1918 up to June 30, 1919, there were 2,500,662 men examined, of whom only 1,356, or 0.54 per 1,000, were found to be tuberculous."

As a roentgenogram of the chest was not routine in these examinations, it is likely that a large proportion of the 9,648 men recommended for discharge on reexamination and the 1,356 so diagnosed during demobilization could have been eliminated before induction if each man had had a roentgenogram of his chest.

Recent reports from the Surgeon General's Office indicate that the Army is now committed to a routine roentgen examination of all recruits at the induction centers. The latest advice indicates that each station will be provided with standard roentgen ray units capable of using 14 by 17 celluloid or paper film in the conventional manner and some will be equipped in addition with the 4 by 5 inch fluorograph. The purchase and installation of this equipment will probably not be available throughout the nation before the fall of 1941. In addition to the routine roentgenogram on admission, roentgenograms will also be taken at the time of discharge. The next logical step will be periodic roentgen examinations of men in the service and will represent both an ideal and a very practical plan of procedure.

NEW YORK CITY'S CONTRIBUTION

The Bureau of Tuberculosis of the New York City Department of Health has been engaged in the mass roentgen ray survey of the apparently healthy population as a method of case finding since 1933. As of Dec. 31, 1940 a total of 330,923 individuals have been examined. An extensive report of some of these findings was published as a supplement to the *American Review of Tuberculosis*.[5] These surveys have been accepted as a basic part of the tuberculosis control program in New York City. Thus, our interest in providing a similar service for inductees and members of the state National Guard was based on well founded experience. Accordingly, our mass roentgen ray services, which were made possible through a project with the Works Progress Administration, were offered to the surgeon of the Second Corps Area prior to the directive that was issued by the Adjutant General's Office on Oct. 28, 1940.

The Department of Health received assistance in this work from the Queens Tuberculosis and Health Association in the form of payment for roentgenograms taken of inductees included in the first two calls and clearing through the Queens Induction Station.

The major part of this report will deal with the men inducted into the Army through induction stations of New York City from Nov. 25, 1940 to Jan. 15, 1941 and for National Guardsmen who were inducted into the federal service between Jan. 27 and March 10, 1941.

The department of health provided all materials and personnel for the Army Induction X-Ray Service from Nov. 25, 1940 until Jan. 1, 1941 excepting the cost of films, as mentioned. In addition, in Queens and the Bronx the two tuberculosis associations of the two boroughs assisted in payment of part of certain physicians' sessions.

After Jan. 1, 1941 the Army assumed full financial responsibility for the roentgen ray service in induction centers, the department providing personnel for the interpretation of films. Since January 15 this service has also been taken over by the Army, which has assigned medical reserve officers qualified in this special field. The roentgenographing of national guardsmen has been entirely at the expense of the department of health. Under existing regulations the Army could not pay for this service until after induction, and it was important that rejections be made before that date.

The Second Corps Area included the states of New York, New Jersey and Delaware. This report is concerned with that part of the entire area known as the Southern New York District, comprising New York City, Long Island and the five counties of Westchester, Orange, Rockland, Dutchess and Putnam. This area represents approximately 52 per cent of the population of the entire Second Corps Area, yet the number of men inducted in this district is reported to be about 60 per cent of the entire corps area.

At the outset there were four induction stations. Since January 1941 all work has been done in two stations, one in Manhattan and one in Queens.

PLAN OF OPERATION

Equipment, to be described later, was set up in each station. The inductees were usually roentgenographed on arrival at the station to allow as much time for processing of films and reading as possible. As the recruit was supposed to be cleared through all examinations and made ready for induction and transfer to a reception center (Fort Dix or Camp Upton) by 1 p. m. or not later than 2:30 of the same day it was necessary to have a report on the roentgenogram within an hour or less.

The responsibility for rejection on the basis of the roentgenogram was assigned to the clinician reading films and in conformance with Mobilization Regulations 1-9.

At the time of rejection all men residents of New York City were given an appointment within the next two or three days to appear at the Health Department's Central Chest Clinic for further study. At that time a complete study was made of the case, including history, physical examination, sputum, fluoroscope, roentgenograms in one or more positions, iodized oil or whatever other examinations were deemed essential to arrive at a final diagnosis. If the findings warranted rejection under Mobilization Regulations 1-9, a report was sent to the chairman of the local draft board indicating that the inductee was permanently rejected. If, on the other hand, the subsequent examination proved the original findings to be of no significance, a letter to the chairman of the local draft board indicated that, unless there were other rejections against the applicant, he could be referred back to the induction center as satisfactory. This happened in several instances. This same cooperative procedure between the department of health and the Army in clearing cases rejected at the induction center has continued even though the Army

4. Councell, Clara E.: War and Infectious Disease, Pub. Health Rep. **36:** 547 (March 21) 1941.
5. Edwards, Herbert R.: Tuberculosis Case Finding Studies in Mass Surveys, Am. Rev. Tuberc. (supp.) **41,** June 1940.

has been responsible for all work at the induction station.

In the case of rejected men outside New York City, a report of the original roentgen ray findings with recommendations for further study similar to the service provided for residents of New York City was sent to the chairman of the local draft board in the county of his residence.

METHOD OF ROENTGEN RAY EXAMINATION

The necessity for rapid service has already been indicated. When plans had to be made to handle from sixty to three hundred or more men per unit daily it was impossible to use the rapid roll method that has been so effective in our routine survey program. The men reported at the center at 8 a. m. and after preliminary registration were referred to the roentgen ray unit, where a staff of WPA clerks completed survey cards with the essential facts for final analysis of the data. A lead identifying marker was cut showing name, roentgen ray number and other identification data. The man was then roentgenographed and promptly referred to another location to start his complete physical examination.

The x-ray apparatus consisted of a 150 milliampere, 90 kilovolt four valve tube machine constructed so as to be easily transportable. A modification of the roll paper camera was used in connection with a specially constructed portable dark room measuring 8 by 8 feet with the back of the camera integrated into one side of the dark room.

A signal device was installed between the roentgen ray technician and the dark room. As soon as a film was exposed, the signal was flashed and the dark room crew cut off the film and placed it in the developing bath. The signal was then reversed indicating that another film was ready to be exposed. A team of three, consisting of a technician and two dark room assistants, were able to operate faster than one exposure a minute. The films were processed in large trays and from the fixing bath were passed out to the physician through a light-proof pass. After being read, the films were washed in a portable tank and dried in a special device designed for the purpose.

CLASSIFICATION OF LESIONS

As previously indicated, acceptance or rejection was based on army regulations M. R. 1-9 Section XIII. Men showing any form of reinfection types of tuberculosis were rejected, based on the possibility of lesions of this type seen in our studies becoming aggravated under conditions of military service. Primary lesions considered as active or extensive calcification were likewise rejected. Other forms of significant pulmonary disease, such as bronchiectasis, pneumonitis, atelectasis or extensive pleural changes, were cause for rejection until further study could determine their importance. Men with obviously abnormal cardiac silhouettes were reported to the medical examiners for such further study as might be indicated. Men with nothing more than apical caps, and those with small well healed primary lesions were not rejected.

ANALYSIS OF FINDINGS

The findings presented herewith are made up of (1) those obtained up to January 15, that is, during the period when the department of health was actively engaged in the program, and (2) those secured since January 15, when the Army assumed full responsibility.

1. The first group consists of the analysis of the roentgenograms of 16,150 individuals; 6,609 inductees (100 per cent) and 9,541 Guardsmen (all members of thirteen units of the state National Guard). A general summary of the principal observations in these two groups will be found in table 1.

TABLE 1.—*Inductees and National Guardsmen, Southern New York District, 1940-1941*

Unit	Number Roentgenographed	Mean Age	Rejected Under M. R. 1-9: Total Rejected No.	Total Rejected %	Pulmonary Tuberculosis: Active No.	Active %	Arrested No.	Arrested %	Number Other Pulmonary No.	Other Pulmonary %
71st Field Artillery Hdq. and Hdq. Battalion	80	24.9	2	2.50	1	1.25	..	....	1	1.25
101st Military Police	449	24.3	7	1.56	3	0.67	4	0.89	..	....
101st Signal Battalion	279	22.8	6	2.15	1	0.36	1	0.36	4	1.43
101st Cavalry	981	24.9	11	1.12	5	0.51	4	0.41	2	0.20
102d Coast Artillery	74	24.2	1	1.35	..	....	..	....	1	1.35
102d Co. C Anti-Tank	105	22.0	..	....	..	....	..	....	..	....
186th Field Artillery	937	23.3	7	0.75	1	0.11	5	0.53	1	0.11
187th Field Artillery	912	23.4	12	1.32	5	0.55	4	0.44	3	0.33
191st Co. A Tank Battalion	114	23.9	2	1.75	..	....	1	0.88	1	0.88
207th Coast Artillery Anti-Aircraft	1,580	25.0	13	0.82	4	0.25	8	0.51	1	0.06
212th Coast Artillery	1,243	23.9	12	0.97	2	0.16	8	0.64	2	0.16
258th Field Artillery	1,432	23.4	15	1.05	5	0.35	9	0.63	1	0.07
369th Coast Artillery	1,355	25.1	27	1.99	14	1.03	12	0.89	1	0.07
Total National Guard	9,541	24.2	115	1.21	41	0.43	56	0.59	18	0.19
Total inductees first two draft calls	6,609	25.7	90	1.36	29	0.44	46	0.70	15	0.23
Grand total	16,150	24.8	205	1.27	70	0.43	102	0.63	33	0.20

From table 1 it will be noted that the mean age for the two groups appears to be about the same. However, the actual distribution by age is somewhat different, as indicated in tables 2 and 3. Approximately 34 per cent of the Guardsmen were below the age of 21. On the other hand, only about 0.5 per cent of the inductees were below that age. Among the National Guardsmen approximately 3 per cent were above 36; the Negroes supplied twice as many men above this age group.

The 369th Coast Artillery, an all Negro regiment, had the highest mean age in all groups. It also had the widest scatter around that age and relatively more concentration in the upper age groups. This regiment had the highest rate of rejection of all groups, which was almost entirely on the basis of tuberculous pulmonary disease. It also had the highest percentage of men with primary infections. If the findings in this unit are subtracted from the totals of all Guard units a greater difference will be found between Guardsmen and inductees.

The differences noted between the individual units of the National Guard appear on further statistical

analysis to be of little importance in consideration of the numbers involved at specific age periods.

The material was studied by age groupings with the latest available census estimates of the population. It appears that there is a departure from the population curve particularly in the upper age range. It is not known how much of this is due to elimination by the local draft board on economic grounds or for pathologic conditions.

A classification by stages of disease of the 70 men considered clinically significant shows that 46, or 65.7 per cent, were minimal, 23, or 32.9 per cent, moderately advanced and 1, or 1.4 per cent, far advanced. Of these totals the 29 inductees contributed 22 minimal and 7 moderately advanced, giving them proportions of 75.9 and 24.1 per cent respectively.

Considering the total number roentgenographed, primary lesions indicated by calcific deposits were found in 6 per cent of the white men, 8.7 per cent of the Negroes and 7.1 per cent of the Puerto Ricans.

Other classifications by color are of interest. Abnormal cardiac shadows were found in 0.43 per cent of the white men and in 0.46 per cent of the Negroes. Pleural abnormalities not rejectable were present in 3.38 per cent of the white men and 4.2 per cent of the Negroes. Bone abnormalities not rejectable were seen in 5.1 per cent of the white men and 3.9 per cent of the Negroes.

2. The second part of the analysis deals with the men roentgenographed at induction centers since Jan. 16 and through March 31, 1941. The department of health's part during that period has been to reexamine and classify New York City men rejected at the induction center. This is a continuation of our policy from the outset. During the latter period 35,210 men were roentgenographed. Thus, with the 6,609 inductees reported previously the total to March 31 has been 41,819.

Since the assumption of full responsibility by the Army on January 15 we have not attempted to collect data similar to the material previously presented. The following comments, therefore, can deal only in gross numbers.

Of the 35,210 individuals, a total of 491, or 1.4 per cent, were rejected at the induction centers. Of this number 458 were residents of New York City and would therefore be referred to our clinic for final classification. The remaining 33 from outside the city would be referred to their local draft board for such examination.

Up to the time that this report was written, 379 of the 458 men have been examined and cleared at our clinic. The 79 will undoubtedly be cleared in due course. The relationships between the draft boards and the health department have been cordial, and when the rejected man fails to report at the clinic the fact is reported to the chairman of his local board.

The further study of the 379 at our clinic has confirmed the cause of rejection in 330. Of these, 301 were rejected on the basis of chronic pulmonary tuberculosis and 29 for nontuberculous pulmonary disease. Thus, it will be noted that in 49, or 12.9 per cent, the cause for rejection at the induction station was not confirmed and the man was considered suitable to be accepted in the Army from the standpoint of his roentgenogram. The percentage of diagnosis not confirmed in this series was lower than a similar group examined prior to January 15. That figure was 31.3 per cent.

TABLE 2.—*Results of Roentgen Ray Examinations of 9,541 National Guardsmen, Southern New York District, 1940-1941*

Age Group	Number Roentgenographed	Race		Total Rejections Under M. R. 1-9		Reasons for Rejection: Chronic Pulmonary Tuberculosis								Number Other Pulmonary	
						Active		Per Cent		Arrested		Per Cent			
		White	Negro	No.	%	White	Negro	White	Negro	White	Negro	White	Negro	White	Negro
17-19.9	1,323	1,072	251	8	0.61	3	1	0.28	0.40	1	..	0.09	....	3	..
20-22.9	3,385	2,929	456	35	1.03	9	5	0.31	1.10	10	4	0.34	0.88	7	..
23-25.7	2,438	2,232	206	17	0.70	6	1	0.27	0.49	6	2	0.03	0.97	2	..
26-28.9	1,168	1,009	159	18	1.54	7	1	0.69	0.63	8	1	0.79	0.83	1	..
29-31.9	547	452	95	17	3.11	1	4	0.22	4.21	8	..	1.77	....	4	..
32-34.9	317	244	73	5	1.58	..	..	....	....	3	2	1.23	2.74	..	..
35-37.9	160	113	47	8	0.50	1	..	0.88	....	5	2	3.54	4.42	..	..
38-40.9	72	41	31	4	5.56	..	2	....	6.45	1	1	2.44	3.23	..	..
41-43.9	46	31	15	2	4.35	..	..	....	....	1	..	3.23	....	..	1
44-46.9	33	23	10	1	3.03	..	..	....	....	1	..	4.35	....	..	..
47-49.9	28	17	11	..	....	..	..	....	....	..	..	....	....	..	..
50 and over	24	10	4	..	....	..	..	....	....	..	..	....	....	..	..
Total	9,541	8,183	1,358	115	1.21	27	14	0.33	1.03	44	12	0.54	0.88	17	1

TABLE 3.—*Results of Roentgen Ray Examinations of 6,609 Army Registrants, Southern New York District, 1940-1941*

Age Group	Number Roentgenographed	Race		Total Rejections Under M. R. 1-9		Reasons for Rejection: Chronic Pulmonary Tuberculosis								Number Other Pulmonary	
						No. Active		Per Cent		No. Arrested		Per Cent			
		White	Negro	No.	%	White	Negro	White	Negro	White	Negro	White	Negro	White	Negro
17-19.9	20	20	..	..	....	..	..	....	....	..	..	....	....	..	..
20-22.9	1,967	1,917	34	15	0.96	7	..	0.37	....	6	..	0.31	....	2	..
23-25.9	2,107	2,047	39	19	0.90	7	..	0.34	....	9	..	0.44	....	2	..
26-28.9	1,200	1,154	31	18	1.50	5	..	0.43	....	9	..	0.78	....	3	1
29-31.9	678	648	20	17	2.51	3	..	0.46	....	10	..	1.54	....	4	..
32-34.9	479	456	19	15	3.13	4	1	0.88	5.26	7	..	1.54	....	2	..
35-	145	138	4	6	4.14	1	..	0.72	....	3	1	2.17	25.0	1	..
Total	6,609	6,393	146	90	1.36	28	1	0.44	0.68	45	1	0.70	0.44	14	1

With experience we are undoubtedly improving our technic and ability to evaluate the case properly. This experience also indicates the difficulties involved in this work when it is established on a nationwide basis.

A classification of lesions in the 301 rejected men showed 108 as significant and 193 as apparently arrested lesions not safe risks for military training.

As the same physicians at the induction centers interpreted all films, it is reasonable to assume that the follow-up examination of the entire 491 rejected men would be the same as the results obtained in the 379. On this basis then there would be 389, or 1.10 per cent, finally rejected on the basis of chronic pulmonary tuberculosis. Those classified as clinically significant would be 139, or 0.4 per cent; and 250, or 0.71 per cent, would be apparently arrested lesions. These figures are quite comparable with similar rates for inductees in table 1.

The distribution by stage of disease on the foregoing assumptions would be minimal 50 per cent, moderately advanced 42.6 per cent, and far advanced 7.4 per cent.

REJECTIONS FOR CONDITIONS OTHER THAN TUBERCULOSIS

It will be noted in table 1 that 33 were rejected for "other pulmonary conditions" within the definition of M. R. 1-9. To these may be added 29 found in the examination since January 16. For convenience the 62 cases may be summarized as in table 4.

TABLE 4.—*Conditions for Which Rejections Have Been Made Since January 16*

Bronchiectasis	23
Pneumonia	8
Adhesive pleuritis	6
Spontaneous pneumothorax	5
Neoplastic disease	5
Pulmonary cyst	2
Atelectasis	2
Effusion	2
Pulmonary abscess	1
Bullous emphysema	1
Pneumoconiosis	1
Rheumatic heart	1
Pott's disease	1
Undetermined lesions	4

COST ANALYSIS

It is important to consider the cost of this added procedure in the clearing of recruits for military service. The total cost of services rendered by the department of health, including the cost of films from Jan. 1 to Jan. 15, 1941 paid by the Army was $23,614.20. If Spillman's estimate of $10,000 as the cost to the government of a man with tuberculosis admitted into military service is correct, this study represents a saving to the federal authorities of about $1,720,000.

In table 5 is presented an itemized statement of the cost of materials and personnel utilized in the completion of examinations in the two groups. The first stage of operation, "service at examination center," is that part of the routine services that would doubtless be of the greatest interest to the Army, as it represents the cost of roentgenographing and rejecting a man without the necessary follow-up. As presented in this statement the item of $3,163 for clerical service might be omitted by the Army, as it represented the cost of clerks to prepare survey information for future analysis. Also we used approximately a third more clerical personnel than was necessary for the actual work done, because at the outset the necessary number of persons was not known and every effort was made to obviate a slowing up of the flow of men through the roentgen ray phase of examination. On the other hand, if the Army should attempt to make a detailed analysis of this work, clerical assistance would be required.

TABLE 5.—*Cost of Roentgen Ray Examination for 6,609 Selective Service Inductees and 9,541 National Guardsmen*

Type of Service	Inductees	Guardsmen	Total
Service at examination center			
Paper roentgenograms	$5,304.00	$7,657.20	$12,961.20
Clinician to interpret	450.00	.....	450.00
Clerical assistance	1,163.00	2,000.00	3,163,00
Follow-up examination at central chest clinic			
Personnel:			
Clinicians	120.00	750.00	870.00
Nurses	130.00	210.00	340.00
Roentgen ray technician	40.00	60.00	100.00
Clerical, stenographic, statistician	1,800.00	2,500.00	4,300.00
Supplies:			
Films and chemicals	70.00	100.00	170.00
Miscellaneous	30.00	40.00	70.00
Sputum examination @ 35 cents	45.00	75.00	120.00
Overhead (rent, heat, telephone)	120.00	225.00	345.00
Depreciation in equipment	20.00	30.00	50.00
Supervision:			
Bureau staff	200.00	350.00	550.00
WPA	50.00	75.00	125.00
Grand total	$9,542.00	$14,072.20	$23,614.20

A reasonable estimate of cost for the roentgenogram and the clinician's time for interpretation at the induction center would be $5,574. In the case of Guardsmen the cost of interpreting the paper roentgenograms is estimated at $500, which is included in the item "clinician" in the follow-up examination, because their films were read at the central chest clinic. Thus the cost of the roentgenograms and the clinician's services for the latter group would be $8,157.20; for both groups a total of $13,911.20, or 58.8 per cent of the total cost for the complete service.

A comparison of unit costs for rejecting a man on the basis of the original roentgenogram and the interpretation and the complete follow-up is shown in table 6.

The items included in the cost analysis may be briefly analyzed as follows: Paper roentgenograms represent a service by the venders. They provided the equipment, technicians, film and the processing of the latter to the point of delivery to the department of health. The cost was scaled on the basis of the number of men roentgenographed in a given day. For 500 or more the unit cost was $0.75 and for 200 or less $1 per person. The numbers examined daily during these studies varied; thus the average cost per roentgenogram was 80 cents.

TABLE 6.—*Comparison of Cost to Reject Inductees and Guardsmen on Basis of Roentgen Ray Examinations for Chronic Pulmonary Tuberculosis and Other Causes*

	Inductees			Guardsmen		
		Unit Cost *			Unit Cost *	
Cause of Rejection	No.	1	2	No.	1	2
Chronic pulmonary (arrested and significant)	75	$76.72	$127.23	97	$84.09	$145.07
Significant pulmonary tuberculosis	29	198.41	329.03	41	198.96	343.22
Other causes	15	383.60	636.13	18	453.18	781.79
Rejection for all causes	90	63.93	106.02	115	70.93	122.37

* 1, original roentgen ray and interpretation; 2, original and follow-up examination.

The clerical personnel was almost entirely from the WPA. Clinicians, nurses, roentgen ray technicians and supplies were provided by the department of health. The cost of a sputum examination at 35 cents represents overhead, personnel and materials; under "overhead" a charge was made for the use of space and

service based on cost analyses used in our work. Depreciation represents a reasonable charge against the department's roentgen ray equipment. The item of supervision represents a pro rata charge against the administrative staff of the department of health and the WPA. While these various items are more inclusive than those generally quoted for cost studies of this character, they are nevertheless considered to represent the actual cost of such a program.

SUMMARY

The Department of Health of New York City with the cooperation of the surgeon of the Second Corps Area set up and organized a chest roentgenographic service at the induction centers in the Southern New York District for all inductees of the Selective Service from the first call, Nov. 25, 1940. The complete service was taken over by the Army as of Jan. 15, 1941.

The department of health also provided a routine chest roentgenogram for all members of thirteen National Guard units inducted into the federal service between Jan. 27 and March 10, 1941.

A total of 6,609 selective service inductees were roentgenographed and 90, or 1.36 per cent, were rejected on the basis of chest roentgenographic findings, 29, or 0.44 per cent, on the basis of lesions typical of significant pulmonary tuberculosis, 46, or 0.70 per cent, with lesions typical of arrested pulmonary tuberculosis, and 15, or 0.23 per cent, on the basis of primary lesions other than tuberculosis.

A total of 9,541 National Guardsmen were roentgenographed, and 115, or 1.21 per cent, rejected for all causes. Forty-one, or 0.43 per cent, for significant tuberculosis, 56, or 0.59 per cent, for arrested pulmonary tuberculosis and 18, or 0.19 per cent, for other than tuberculous lesions.

As a group the selective service inductees gave a higher percentage of rejections in each category than did the Guardsmen. If the 369th Coast Artillery (Negro) unit is excluded from the Guardsmen's total, this difference becomes greater.

A detailed cost analysis of personnel, equipment and materials necessary to complete this study indicated a total of $23,614.20. Using this as a basis for computation, the unit cost to examine each individual by roentgenogram was $1.47. The cost of taking a roentgenogram and its interpretation without any further follow-up was $13,911.20, or 58.8 per cent of the total. On this basis the unit cost to examine each individual was 0.867 cent.

The unit cost to reject a man for military service on the basis of the total cost was $106.02 for inductees and $122.37 for Guardsmen, on the basis of a single roentgenogram and its interpretation $63.93 for inductees and $70.93 for Guardsmen.

In addition to the studies participated in directly by the department of health up until January 15, there have been 35,210 men cleared in the induction stations up to March 31, 1941. Of this total it is estimated that 389, or 1.1 per cent, are rejectable on the basis of chronic pulmonary tuberculosis.

Spillman has reported that the cost to the federal government of accepting a person with tuberculosis into the armed services is $10,000. Thus, in these studies involving 41,819 inductees and 9,541 Guardsmen, or a total of 51,360 men, 561 persons with chronic pulmonary tuberculosis were rejected, representing an estimated saving to the government of $5,610,000.

NEW MOBILE ROENTGEN RAY UNIT FOR ARMY HOSPITALS

A new mobile roentgen ray unit that can be packed or unpacked in fifteen minutes and produce roentgenograms for study in about a half an hour is being delivered to army hospitals, the War Department has announced.

Developed at the Army Medical Center, Washington, D. C., the unit is designed to provide field doctors with complete fluoroscopic and roentgen ray facilities. It is so compact and detachable that it permits hasty removal in time of danger.

Major Alfred A. de Lorimier, director of the department of roentgenology at the Army Medical School, who supervised the development of the unit, said that each component of the nine part unit weighs less than 200 pounds.

Far less cumbersome and much safer to handle than the equipment used in field stations during the World War, the new unit is the first to be designed especially for army use since 1918.

Because it is adaptable for use in permanent hospitals as well as in temporary field tents, the unit has been authorized for every type of army medical station. Quantity delivery of some of the most recently designed parts has just been started.

The various sections of the unit come packed in special trunks, each of which can be carried by two men. Among the equipment is a black tent, as easy to set up within a room as in a field, serving either as a fluoroscope compartment or as a dark room for processing film.

Other items are a gasoline-operated generator and a refrigerator-heater combination that keeps the water in the developing tank at a constant temperature between 60 and 70 F.

One feature is an air-cooled fluoroscopic tube that permits its constant use twenty-four hours a day. The old type tube could be used only for ten minute periods and then had to be turned off for cooling.

The equipment is shock proof, and its fluoroscopic screen can be adjusted handily to examine patients in horizontal and standing positions as well as sitting.

ADDITIONAL HOSPITAL FACILITIES AT AIR CORPS STATION

Construction of additional hospitalization facilities at fifteen Air Corps stations in all parts of the country at an estimated cost of $1,209,129, made necessary by increases in strength under the thirty thousand pilot training program, has been authorized by the War Department.

Stations Under Construction

Station	Construction	Amount
Albany, Ga.	Expansion of hospital to 151 beds	$ 74,800
Barksdale Field, La.	Addition to one ward	16,760
Elgin Field, Fla.	Expansion of hospital to 144 beds	188,260
Ellington Field, Texas	Addition to two wards	34,800
Macon, Ga.	Expansion of hospital to 118 beds	36,480
Mather Field, Calif.	Addition to one ward	17,400
Maxwell Field, Ala.	One officers' quarters, 1 mess, 2 barracks, 5 wards, 1 infirmary, utilities and engineering	160,579
San Angelo, Texas	Addition to one ward	17,870
Gunter Field, Ala.	Construction new 118 bed cantonment type hospital	236,140
Panama City, Fla.	Expansion of hospital to 170 beds	129,560
Phoenix, Ariz.	Expansion of hospital to 144 beds	91,900
Randolph Field, Texas	Addition to three wards	54,270
Selma, Ala.	Addition to one ward	17,870
Stockton, Calif.	Addition to one ward	15,810
Victoria, Texas.	Expansion of hospital to 144 beds	116,630
Total		$1,209,129

The stations, the construction, and the amount of the project at each station are given in the accompanying table.

SURGEONS OF THE FOUR ARMIES

The medical officers who will serve as surgeons of the four armies have been selected and are as follows:

GIBSON, Paul W., Colonel, 2d Army, Memphis, Tenn.
McCORNACK, Condon C., Colonel, 4th Army, Presidio of San Francisco.
McDONALD, Robert C., Colonel, 3d Army, San Antonio, Texas.
WEED, Frank W., Colonel, 1st Army, Governors Island, N. Y.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

WAR DEPARTMENT

The following additional medical reserve corps officers have been ordered to extended active duty by the War Department, Washington, D. C.:

BANNERMAN, Moss Morton, 1st Lieut., New Orleans.
BARRETT, Maurice E., 1st Lieut., Fort Stockton, Texas.
BLAIR, John Dennis, Captain, Iowa City.
BROWN, Wilson Gordon, 1st Lieut., St. Louis.
CONLEY, John Joseph, 1st Lieut., Carnegie, Pa.
EICHHORN, John P., 1st Lieut., Cleveland.
ELTON, Norman William, Major, Buffalo.
FREEMAN, Robert Gowans, 1st Lieut., San Marino, Calif.
GORLIN, David Oscar, Captain, South Ozone Park, N. Y.
GRUNNAGLE, Jerome Francis, 1st Lieut., Pittsburgh.
HANLON, Thomas Joseph, Jr., 1st Lieut., Clayton, Mo.
HAYNES, Leigh Kendel, 1st Lieut., Brooklyn.
HUGHES, Harold Franklin, 1st Lieut., Philadelphia.
KIMBROUGH, Robert Cooke, Jr., 1st Lieut., Madisonville, Tenn.
KITCHIN, William Walton, 1st Lieut., Philadelphia.
McCULLOUGH, Robert William, 1st Lieut., Charlottesville, Va.
McKEE, Thomas Lapsley, Captain, Keokuk, Iowa.
MARTIN, Stevens John, 1st Lieut., Madison, Wis.
METZGAR, Thomas I., Captain, Stroudsburg, Pa.
MIKULENCAK, Benjamin August, 1st Lieut., Dallas, Texas.
MOORE, Donald Edmund, 1st Lieut., Medford, Ore.
MULE, Joseph Salvatore, 1st Lieut., Jamaica Estates, N. Y.
PADDEN, Edmund Henry, Major, Oakland, Calif.
PRESCOTT, Manfred Ullman, Major, San Francisco.
REID, Frederick Kessinger, 1st Lieut., Rome, N. Y.
RINGNESS, Henry Raymond, 1st Lieut., Washington, D. C.
RYAN, Andrew Morris, 1st Lieut., San Francisco.
SASKO, Vladimir Molnar, 1st Lieut., Chicago.
SCHMELA, Woodrow Warner, 1st Lieut., Santa Barbara, Calif.
SCHNEBLY, John Thomas, 1st Lieut., Silver Springs, Md.
SCHWARTZ, Walter William, 1st Lieut., Iowa City.
WANGEMAN, Clayton Prater, Captain, Madison, Wis.
WAY, Roger Atkinson, 1st Lieut., Spartanburg, S. C.
WILLIS, John Mitchell, Jr., 1st Lieut., Carlisle Barracks, Pa.

Orders Revoked

AMES, Edward S., 1st Lieut., Forest Hills, N. Y.
BAKER, Augustus L. L., Major, Dover, N. J.
BARRETT, Richard Henry, 1st Lieut., Rochester, Minn.
BEERNINK, Ernest Henry, Captain, Grand Haven, Mich.
EBERHARD, Theodore Philip, 1st Lieut., Columbus, Mo.
LECLERCQ, George Theodore, Captain, Boston.
McCULLOUGH, John Davis, 1st Lieut., East Knoxville, Tenn.
McHARDY, George Gordon, 1st Lieut., New Orleans.
MAGILL, Herbert Kelvin, 1st Lieut., Baltimore.
MAYORALL, Antonio, Major, New Orleans.
MENCHER, Edward Wallace, 1st Lieut., New York.
REICHARD-ESTEVES, William, 1st Lieut., Des Moines, Iowa.
SNYDER, Gordon Elias, 1st Lieut., New Milford, Pa.

FIRST CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, First Corps Area, which comprises the states of Maine, Vermont, New Hampshire, Rhode Island, Massachusetts and Connecticut:

BARTON, Lewis W., 1st Lieut., Lexington, Mass., Manchester, N. H.
BLOCK, Herman L., 1st Lieut., Boston, Fort Williams, Maine.
BLOOMENTHAL, John, 1st Lieut., Burlington, Vt., Camp Forrest, Tenn.
DURGIN, Lawrence N., Captain, Amherst, Mass., Camp Edwards, Mass.
FOX, Nathan S., Captain, Manchester, N. H., Camp Forrest, Tenn.
FREEDMAN, Jacob P., Captain, Boston, Fort Oglethorpe, Ga.
GELLER, Philip S., 1st Lieut., Newport, R. I., Fort Adams, R. I.
HARRINGTON, Francis Y., Captain, West Hartford, Conn., Fort Oglethorpe, Ga.
HOVENANIAN, Michael S., 1st Lieut., Cambridge, Mass., Fort Oglethorpe, Ga.
JUDD, Lester E., 1st Lieut., Enosburg Falls, Vt., Fort Oglethorpe, Ga.
KREIDBERG, Marshall B., 1st Lieut., Dorchester, Mass., Fort Devens, Mass.
LOUGHRAN, James Frederick, 1st Lieut., Lowell, Mass., Hartford, Conn.
MANGANELLI, Charles Vincent, 1st Lieut., Topsfield, Mass., Camp Edwards, Mass.
NILES, John O., 1st Lieut., Osterville, Mass., Camp Edwards, Mass.
SMERZ, Anton, 1st Lieut., Worcester, Mass., Camp Forrest, Tenn.

Orders Revoked

ARCHAMBAULT, Armond C., Captain, Barre, Vt.
ARLEN, Richard P. S., 1st Lieut., Providence, R. I.
BARCOMB, Albert E., Lieut., Rochester, N. H.
BARD, Henry H., Captain, Boston.
BISHOP, Ernest W., 1st Lieut., East Providence, R. I.
CASHMAN, Justin L., 1st Lieut., North Haven, Conn.
CURTIS, Sprague, Lieut., M. R. C., Westfield, Mass.
DeWITT, Reginald F., 1st Lieut., Plymouth, N. H.
DOOLEY, Francis M., Captain, Portland, Maine.
DOYLE, George M., 1st Lieut., Gloucester, Mass.
DYE, William J. P., 1st Lieut., Wolfeboro, N. H.
ESTABROOK, John S., 1st Lieut., Brandon, Vt.
FINEBERG, Meyer H., Major, Boston.
FRANCESCHI, Aldo G., 1st Lieut., St. Johnsbury, Vt.
GALLERY, Daniel F., 1st Lieut., Fall River, Mass.
GARIPAY, Stanley L., 1st Lieut., Hartford, Conn.
GELLER, Philip S., 1st Lieut., Newport, R. I.
GINGOLD, Thomas L., Major, New Haven, Conn.
GLADSTONE, Arthur, 1st Lieut., Burlington, Vt.
GOODALL, Edwin B., Captain, Newton Centre, Mass.
HADFIELD, Jonathan P., Fall River, Mass.
HAMMER, Joseph, Lieut., M. R. C., Wellesley, Mass.
HARDY, Wilbert C., Lieut. Col., Haverhill, Mass.
HERSEY, Thomas F., Lieut., M. R. C., Hamden, Conn.
HOBBS, Milford L., 1st Lieut., Burlington, Vt.
HOLMES, Everett B., 1st Lieut., Ludlow, Vt.
HUSSEY, Earle U., Captain, Lynn, Mass.
JARDINE, Ralph R., 1st Lieut., Lyndonville, Vt.
LEANI, Aldo, 1st Lieut., Barre, Vt.
LEVIN, Harold M., 1st Lieut., Burlington, Vt.
LISBON, Wallace, 1st Lieut., Providence, R. I.
MURPHY, Theodore P., 1st Lieut., Montpelier, Vt.
NATHAN, Edward M., 1st Lieut., Quincy, Mass.
NEWTON, Louis, 1st Lieut., Bridgeport, Conn.
OTIS, Carlos G., 1st Lieut., Townsend, Vt.
PERLEY, John R., 1st Lieut., Lakeport, N. H.
RAFFERTY, Francis B., 1st Lieut., Willimantic, Conn.
RICCIO, Joseph S., 1st Lieut., Hamden, Conn.
RICHTER, Waldemar G., Captain, Bedford, Mass.
ROBBINS, Albert I., 1st Lieut., Roxbury, Mass.
RYNARD, William M. W., 1st Lieut., Stamford, Conn.
SAIA, John L., 1st Lieut., Barre, Vt.
SELTZER, Joseph P., 1st Lieut., Fairfield, Maine.
SMITH, Deering G., Captain, Nashua, N. H.
SMITH, Gordon B., 1st Lieut., Rutland, Vt.
TUCKER, Arthur S., 1st Lieut., New Haven, Conn.
WIESNER, Ernest E., 1st Lieut., Brockton, Mass.
WILCOX, Lloyd M., 1st Lieut., Terryville, Conn.

SECOND CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Second Corps Area, which comprises the states of New York, New Jersey and Delaware:

ABARBANEL, Milton G., 1st Lieut., Jersey City, N. J., Air Base, Tallahassee, Fla.
ABELSON, Max M., 1st Lieut., New York, Fort Bragg, N. C.
ABRAHAMS, Harry H., 1st Lieut., Long Beach, L. I., N. Y., Camp Shelby, Miss.
ADELSON, Edward R., 1st Lieut., New York, Induction Station, Fort Jay, N. Y.
AGATSTON, Howard, 1st Lieut., Brooklyn, Induction Station, Fort Jay, N. Y.
ALIBERTO, John E. V., 1st Lieut., Irvington, N. J., Induction Station, Fort Jay, N. Y.
ALPERT, Sidney, 1st Lieut., Lakewood, N. J., Basic Flying School, Macon, Ga.
ANHALT, James E., 1st Lieut., Brooklyn, Camp Shelby, Miss.
ARONSON, Philip, 1st Lieut., Brooklyn, Fort Jackson, S. C.
BARTONE, Noel F., 1st Lieut., New York, Fort Jackson, S. C.
BATTAGLIA, Dominic, 1st Lieut., Johnstown, N. Y., West Point, N. Y.
BETTLE, Ronald A., 1st Lieut., Hackensack, N. J., Camp Shelby, Miss.
BLOOMENTHAL, Sanford R., 1st Lieut., Trenton, N. J., Air Base, Orlando, Fla.
BORKOW, Philip S., 1st Lieut., Brooklyn, Savannah Air Base, Savannah, Ga.
BROWN, Reeve M., 1st Lieut., Williamsville, N. Y., Fort Niagara, N. Y.
BUCHBINDER, Murray W., Captain, Jamaica, L. I., N. Y., Induction Station, Trenton, N. J.
BUNTING, John J., 1st Lieut., Clifton, N. J., Air Base, Meridian, Miss.
CACECI, Thomas G., 1st Lieut., New York, Mitchel Field, N. Y.
CARABELLI, Amilcare A., Captain, Trenton, N. J., Induction Station, Fort Jay, N. Y.
CARRIER, Russell N., 1st Lieut., Astoria, N. Y., Induction Station, Trenton, N. J.
CART, Harry, Captain, New York, Camp Shelby, Miss.
CAVANAGH, James E., 1st Lieut., New York, Air Base, Tallahassee, Fla.
CHAPMAN, David H., 1st Lieut., Syracuse, N. Y., Mitchel Field, N. Y.
CICHON, Elmer J., 1st Lieut., Clifton, N. J., Air Base, Orlando, Fla.
COLBURN, Russell F., 1st Lieut., Syracuse, N. Y., Mitchel Field, N. Y.
COLETTI, Cataldo J., 1st Lieut., New York, Induction Station, Fort Jay, N. Y.

CONAN, Mark Edwin, 1st Lieut., Syracuse, N. Y., Mitchel Field, N. Y.
COPPOLA, Santo T., 1st Lieut., New York, Air Base, Jackson, Miss.
COVE, Arthur M., 1st Lieut., Brooklyn, Fort Totten, N. Y.
CRANE, Donald V., 1st Lieut., Buffalo, Fort Bragg, N. C.
DeHOFF, John N., 1st Lieut., Flushing, L. I., N. Y., Camp Shelby, Miss.
DELSON, Barnet, 1st Lieut., Brooklyn, Advanced Flying School, Selma, Ala.
DOBRAK, Alfred H., 1st Lieut., Buffalo, Fort Bragg, N. C.
DOLLIN, Martin, 1st Lieut., Brooklyn, Induction Station, Trenton, N. J.
EARP, Ralph K., 1st Lieut., New York, Induction Station, Trenton, N. J.
EDISON, Earl M., 1st Lieut., New York, Fort Dix, N. J.
FAGIN, Irving, 1st Lieut., New York, Advanced Flying School, Albany, Ga.
FEARNS, Thomas J., 1st Lieut., Williston Park, N. Y., Camp Shelby, Miss.
FEDER, Edward P., 1st Lieut., Mount Vernon, N. Y., Camp Forrest, Tenn.
FEELY, Edward J., 1st Lieut., Brooklyn, Induction Station, Fort Jay, N. Y.
FEIDELMAN, Milton J., 1st Lieut., Brooklyn, Camp Claiborne, La.
FEINSTEIN, Herman, 1st Lieut., Hempstead, N. Y., Advanced Flying School, Selma, Ala.
FELDMAN, Philip, 1st Lieut., Brooklyn, Camp Shelby, Miss.
FERTIG, Samuel, 1st Lieut., Brooklyn, Air Base, Baton Rouge, La.
FEUER, Abe L., 1st Lieut., New York, Elgin Field, Valparaiso, Fla.
FIANDACA, Patsy M., Jr., 1st Lieut., Poughkeepsie, N. Y., Induction Station, Trenton, N. J.
FISHMAN, Sidney A., 1st Lieut., Flushing, L. I., N. Y., Fort Bragg, N. C.
FRANK, Lawrence F., 1st Lieut., Brooklyn, Fort Bragg, N. C.
FREEDMAN, Harry L., 1st Lieut., Plattsburg, N. Y., Plattsburg Barracks, N. Y.
FRIEDENBERG, Zachary B., 1st Lieut., New York, Fort Benning, Ga.
FRIEDMAN, Gerald J., 1st Lieut., New York, Fort Jackson, S. C.
GAGNIER, Gerald E., 1st Lieut., Churubusco, N. Y., Fort Bragg, N. C.
GIPSTEIN, Milton F., 1st Lieut., Schenectady, N. Y., West Point, N. Y.
GLEASON, Robert L., 1st Lieut., New York, Camp Shelby, Miss.
GOLDENSOHN, Eli S., 1st Lieut., New York, Air Base, Orlando, Fla.
GOLDSTEIN, Daniel L., 1st Lieut., New York, Savannah Air Base, Savannah, Ga.
GRANT, Charles P., 1st Lieut., Bloomfield, N. J., Eglin Field, Fla.
GREENBLAT, Bernard, 1st Lieut., Brooklyn, Fort Dix, N. J.
HAUSER, Saul S., 1st Lieut., Brooklyn, Air Base, Augusta, Ga.
HELLEN, Sydney L., 1st Lieut., New York, Advanced Flying School, Selma, Ala.
HELLMAN, Sidney J., 1st Lieut., New York, Camp Forrest, Tenn.
HERTZMARK, Frederic, 1st Lieut., New York, Camp Shelby, Miss.
HYMES, A. Leonard, 1st Lieut., Brooklyn, Savannah Air Base, Savannah, Ga.
IANNONE, Angelo B., 1st Lieut., Orange, N. J., Air Base, Meridian, Miss.
INCIARDI, James A., Captain, Brooklyn, Induction Station, Fort Jay, N. Y.
JERUSS, Edward G., 1st Lieut., Jamaica, L. I., N. Y., Savannah Air Base, Savannah, Ga.
KAHN, Samuel, 1st Lieut., Brooklyn, Induction Station, Trenton, N. J.
KASS, Herman, 1st Lieut., New York, Elgin Field, Valparaiso, Fla.
KATZ, Isadore, 1st Lieut., New York, Fort Bragg, N. C.
KENNY, James J., 1st Lieut., Orange, N. J., Fort Bragg, N. C.
KLEIN, Joseph, 1st Lieut., Brooklyn, Savannah Air Base, Savannah, Ga.
KLEIN, William S., 1st Lieut., Brooklyn, Fort Jackson, S. C.
KNUDSEN, Arnold F., 1st Lieut., Brooklyn, Air Base, Augusta, Ga.
KRUGMAN, Saul, 1st Lieut., Brooklyn, Advanced Flying School, Selma, Ala.
LANGSAM, Abraham A., 1st Lieut., Brooklyn, Induction Station, Fort Jay, N. Y.
LEIBOWITZ, Sidney, 1st Lieut., New York, Air Base, West Palm Beach, Fla.
LEVENTHAL, Louis, 1st Lieut., Brooklyn, Elgin Field, Valparaiso, Fla.
LUDWIG, Nathan B., 1st Lieut., Brooklyn, Advanced Flying School, Selma, Ala.
LUPTON, Albert M., 1st Lieut., Lewes, Del., Camp Shelby, Miss.
LYNN, Hugh B., 1st Lieut., Verona, N. J., Air Base, Tallahassee, Fla.
MAGEE, William G., 1st Lieut., New York, Induction Station, Fort Jay, N. Y.
MARCUS, Herbert R., 1st Lieut., New York, Induction Station, Trenton, N. J.
MIZROCH, Solomon B., 1st Lieut., Englewood, N. J., Induction Station, Fort Jay, N. Y.
MORELEWICZ, Henry V., 1st Lieut., Buffalo, Fort Niagara, N. Y.
MOSKOWITZ, Eugene, 1st Lieut., Mount Vernon, N. Y., Camp Livingston, La.
NELSON, Irving, 1st Lieut., Brooklyn, Air Base, Jackson, Miss.
NESTOR, John O., 1st Lieut., Newton, N. J., Fort Jackson, S. C.
NIED, Richard E., 1st Lieut., Rochester, N. Y., Fort Bragg, N. C.
OLSSON, Ewald E., Major, Brooklyn, Camp Claiborne, La.
OSTROVE, Lester L., 1st Lieut., New York, Air Base, Jackson, Miss.
PALMIERI, Joseph F., 1st Lieut., Brooklyn, Air Base, Jackson, Miss.
PATTERSON, Barnard D., 1st Lieut., Queens Village, N. Y., Camp Stewart, Ga.
PERILLO, Januarius A., 1st Lieut., Olean, N. Y., Fort Niagara, N. Y.
PESKIN, Aaron R., Captain, New York, Induction Station, Fort Jay, N. Y.
PUERNER, Joseph W., 1st Lieut., Buffalo, Fort Niagara, N. Y.
RAIFMAN, Herman M., 1st Lieut., Brooklyn, Basic Flying School, Macon, Ga.
RAPAPORT, Henry, 1st Lieut., Whitney Point, N. Y., Mitchel Field, N. Y.
RAPPAPORT, Irving, 1st Lieut., Rego Park, L. I., N. Y., Basic Flying School, Macon, Ga.
RAY, Claud B., Captain, Bayside L. I., N. Y., Fort McClellan, Ala.
RENAUD, Oliver Vernon, 1st Lieut., Brooklyn, Camp Shelby, Miss.
RHOADS, Harmon T., Jr., 1st Lieut., New York, Induction Station, Trenton, N. J.
ROLAND, Paul S., Captain, New York, Induction Station, Trenton, N. J.
SCHAFFNER, Bertram, 1st Lieut., New York, Induction Station, Fort Jay, N. Y.
SCHER, David, 1st Lieut., Jamaica, L. I., N. Y., Air Base, Jackson, Miss.
SCHUTZ, Sigmund, 1st Lieut., New York, Induction Station, Trenton, N. J.
SCHWEITZER, Martin, 1st Lieut., New York, Air Base, Baton Rouge, La.
SELTZ, Herman, 1st Lieut., Brooklyn, Mitchel Field, N. Y.
SHAPIRO, Lester, 1st Lieut., New York, Air Base, Meridian, Miss.
SHERBER, Daniel A., 1st Lieut., Brooklyn, Air Base, Baton Rouge, La.
SHINE, Louis B., 1st Lieut., New York, Fort Jackson, S. C.
SIMENSKY, Philip F., 1st Lieut., Brooklyn, Air Base, Orlando, Fla.
SPINELLI, Vincent A., 1st Lieut., Sunnyside, L. I., N. Y., Mitchel Field, N. Y.
SPIVACK, Seymour E., 1st Lieut., Elizabeth, N. J., Eglin Field, Fla.
STURMAN, William A., 1st Lieut., New York, Fort Jay, N. Y.
SUFFNESS, Gustave, 1st Lieut., Elizabeth, N. J., Fort Bragg, N. C.
SWIRE, Howard, Captain, Brentwood, L. I., N. Y., Fort Monmouth, N. J.
TABBAT, Samuel F., 1st Lieut., New York, Air Base, West Palm Beach, Fla.
TAYLOR, James A., 1st Lieut., Kings Park, L. I., N. Y., Pine Camp, N. Y.
THWAITE, Walter G., 1st Lieut., Brooklyn, Fort Jay, N. Y.
TRUBOWITZ, Sidney, 1st Lieut., Brooklyn, Fort Jackson, S. C.
TRUTT, Irving, 1st Lieut., Brooklyn, Fort Jackson, S. C.
VALENTE, Michael A., 1st Lieut., Strykersville, N. Y., Fort Benning, Ga.
VAN GORDER, Charles O., 1st Lieut., Hackensack, N. J., Fort Bragg, N. C.
VARON, Leo R., 1st Lieut., New York, Air Base, West Palm Beach, Fla.
WADSWORTH, John H., 1st Lieut., Cobleskill, N. Y., West Point, N. Y.
WALDORF, Frank B., 1st Lieut., Syracuse, N. Y., Mitchel Field, N. Y.
WANDERMAN, Sidney E., 1st Lieut., New York, Fort Benning, Ga.
WARREN, Harold D., 1st Lieut., Brooklyn, Fort Jay, N. Y.
WEINRAUB, Edwin C., 1st Lieut., New York, Savannah Air Base, Savannah, Ga.
WOODWORTH, John Albert, 1st Lieut., Syracuse, N. Y., Mitchel Field, N. Y.
ZELLER, Harry N., 1st Lieut., New York, Fort Jackson, S. C.
ZUCKERMAN, Hyman, 1st Lieut., Brooklyn, Savannah Air Base, Ga.

THIRD CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Third Corps Area, which comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland:

ASHBURY, Howard Elmer, Lieut. Col., Baltimore, Headquarters 3d Corps Area, Baltimore.
BAKER, Howard Walter, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Indiantown Gap, Pa.
BAVENDAM, Frederick Arnold, Jr., 1st Lieut., Philadelphia, Fort George G. Meade, Md.
BIRKEL, Benedict Herman, 1st Lieut., Harrisburg, Pa., Camp Lee, Va.
BENSON, Paul John, 1st Lieut., Punxsutawney, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
BLAIR, Joseph Richard, 1st Lieut., Slovan, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
BOOKER, Daniel Coleman, 1st Lieut., Richmond, Va., Fort Eustis, Va.
BORDEN, Daniel LeRay, Lieut. Col., Washington, D. C., Fort George G. Meade, Md.
BRADY, Fred Charles, 1st Lieut., Charleroi, Pa., Camp Lee, Va.
BROWN, Joseph Donald, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Pa.
BOYER, Randal Allen, 1st Lieut., Philadelphia, Fort Monroe, Va.
BRYER, Benjamin Franklin, 1st Lieut., Pittsburgh, Fort Eustis, Va.
BROWN, Brooks Gideon, Jr., 1st Lieut., Silver Springs, Md., Fort George G. Meade, Md.
BROWN, George Henderson, 1st Lieut., Philadelphia, Aberdeen Proving Ground, Md.
CAMPBELL, Thomas Anthes, 1st Lieut., Philadelphia, Fort Eustis, Va.
CARMICHAEL, John Randolph Tucker, 1st Lieut., Charlottesville, Va., Fort George G. Meade, Md.

CATHCART, Hugh, 1st Lieut., Philadelphia, Indiantown Gap Military Reservation, Pa.
CLAPP, John Sidney, 1st Lieut., Pittsburgh, Fort George G. Meade, Md.
CURTIS, Leo Michael, 1st Lieut., Baltimore, Camp Lee, Va.
DeTUERK, John Jacob, 1st Lieut., Philadelphia, Camp Lee, Va.
DOLOWITZ, David Augustus, 1st Lieut., Baltimore, Camp Lee, Va.
DOW, Charles Harris, 1st Lieut., Chilhowie, Va., Fort George G. Meade, Md.
DUTLINGER, Robert Peck, 1st Lieut., Mount Union, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
FIEDLER, Howard Taft, 1st Lieut., Philadelphia, Edgewood Arsenal, Md.
FITZGERALD, Robert Peter Francis, 1st Lieut., Ardmore, Pa., Fort George G. Meade, Md.
FULTZ, George Simeon, Jr., 1st Lieut., Butterworth, Va., Camp Lee, Va.
GATES, Earle Carlton, Captain, Chesterfield, Va., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
GLASSBURN, Edward Myler, 1st Lieut., Pittsburgh, Fort Eustis, Va.
GODFREY, James Timothy, Jr., 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
HARRELL, Jerome Blaine, 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
HAVERTY, Eugene Francis, 1st Lieut., Pittsburgh, Indiantown Gap Military Reservation, Indiantown Gap, Pa.
HILES, Charles Hall, 1st Lieut., Edgewood, Pa., Carlisle Barracks, Pa.
HILLMAN, Samuel Alvin, 1st Lieut., Washington, D. C., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
HINES, Brainard Evans, 1st Lieut., Richmond, Va., Fort George G. Meade, Md.
JARVIS, Jack Reynolds, 1st Lieut., Towson, Md., Fort Eustis, Va.
JOHNS, Sydney Lloyd, 1st Lieut., Wilkinsburg, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
JONES, Donald Emerson, 1st Lieut., Mount Pleasant, Pa., Indiantown Gap Military Reservation, Pa.
KANNAPEL, Alan Robert, 1st Lieut., Lehighton, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
Lo GRIPPO, Gerald Anthony, 1st Lieut., Norristown, Pa., Fort George G. Meade, Md.
MANTZ, Frank Alphonso, Jr., 1st Lieut., Philadelphia, Fort George G. Meade, Md.
MASON, John Henry, Jr., 1st Lieut., Mayview, Pa., Aberdeen Proving Ground, Md.
MENDELSSOHN, Edwin, 1st Lieut., Ashland, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
MEYERS, Robert Paul, 1st Lieut., Richmond, Va., Fort Story, Va.
OMBRES, Severn Richard, 1st Lieut., Meadville, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
O'NEILL, Hugh Aloysius, 1st Lieut., Pittsburgh, Aberdeen Proving Ground, Md.
OWEN, John Keller, 1st Lieut., Baltimore, Fort George G. Meade, Md.
PRESSMAN, Robert Sydney, 1st Lieut., Philadelphia, Fort Story, Va.
PRESTON, Henry Grant, 1st Lieut., Harrisonburg, Va., Fort Story, Va.
RAPEE, Lawrence Albert, 1st Lieut., Washington, D. C., Aberdeen Proving Ground, Md.
REYNOLDS, Kenneth Earl, Captain, Waynesboro, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
RICE, John Sidney, 1st Lieut., Baltimore, Aberdeen Proving Ground, Md.
RIPP, Jacob, 1st Lieut., Pittsburgh, Fort George G. Meade, Md.
SAGERSON, Robert Patrick, 1st Lieut., Johnstown, Pa., Indiantown Gap Military Reservation, Pa.
SANFORD, Frederick Edmundson, Captain, Sayre, Pa., Aberdeen Proving Ground, Md.
SMITH, James Fulton, 1st Lieut., Clearfield, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
SOLOMON, Cyril, 1st Lieut., Baltimore, Edgewood Arsenal, Md.
UPDEGRAFF, Harry Beshore, 1st Lieut., Millersburg, Pa., Indiantown Gap Military Reservation, Indiantown Gap, Pa.
URBAITIS, Peter William, 1st Lieut., Wernesville, Pa., Camp Lee, Va.
WAGNER, Charles Andrew, Captain, Baltimore, Edgewood Arsenal, Md.
WELEBIR, Andrew John, 1st Lieut., Washington, D. C., Fort George G. Meade, Md.
WIBLE, Harvey Glenn, 1st Lieut., Monessen, Pa., Edgewood Arsenal, Md.
WILSON, John McCullough, Jr., 1st Lieut., Pittsburgh, Camp Davis, N. C.
WOLDOW, Irving, 1st Lieut., Philadelphia, Aberdeen Proving Ground, Md.

Orders Revoked

CALL, Manfred, III, 1st Lieut., Richmond, Va.
DEAN, James Seay, Captain, Pennhurst, Pa.
DODD, William Anthony, 1st Lieut., Baltimore.
DOLOWITZ, David Augustus, 1st Lieut., Baltimore.
FIORE, Charles Nicholas, 1st Lieut., Brentwood, Md.
FOSTER, John Van Valzah, 1st Lieut., Harrisburg, Pa.
FULTZ, George Simeon, Jr., 1st Lieut., Butterworth, Va.
GRIER, George Smith, III, 1st Lieut., Baltimore.
HEIMOFF, Leonard Lincoln, 1st Lieut., Baltimore.
LAURENT, August Aloysius, 1st Lieut., Avella, Pa.
MITCHELL, Edward Albert, 1st Lieut., Clinchco, Va.
OWEN, Robert Franklin, 1st Lieut., Washington, D. C.
PROKOP, Albert George, 1st Lieut., Clairton, Pa.
QUINONES-CHACON, Pascasio, 1st Lieut., Baltimore.
ROTHERMEL, John Keim, 1st Lieut., Strausstown, Berks County, Pa.
SCHLAN, Louis, 1st Lieut., Lewisburg, Pa.
SNIDER, George Everett, 1st Lieut., Richmond, Va.
WILLIAMS, Ben Clayton, 1st Lieut., Baltimore.
YOUNG, Frederick Frick, 1st Lieut., Summerville, Pa.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area, which comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana:

ADAMS, John W., Jr., 1st Lieut., Nashville, Tenn., Camp Claiborne, La.
AKENHEAD, Walton R., 1st Lieut., New Orleans, Camp Claiborne, La.
ANNIS, Leonard S., 1st Lieut., Tampa, Fla., Camp Claiborne, La.
BAUGH, Wendell P., Major, Decatur, Ala., Camp Livingston, La.
BLACK, Millard W., 1st Lieut., Columbus, Ga., Camp Livingston, La.
BROWN, Randall Gay, 1st Lieut., Graymont, Ga., Camp Davis, N. C.
CANNON, Eugene B., 1st Lieut., Asheboro, N. C., Camp Croft, S. C.
CARMOUCHE, Ernest N., 1st Lieut., Crowley, La., Fort Oglethorpe, Ga.
CARRIER, Everett Eugene, 1st Lieut., Fountain City, Tenn, Fort Bragg, N. C.
CHERRY, Alfred, 1st Lieut., Birmingham, Ala., Fort Jackson, S. C.
CLARK, Arthur Lee, 1st Lieut., Iowa, La., Camp Livingston, La.
COBB, John Massey, 1st Lieut., Tuskegee, Ala., Camp Shelby, Miss.
COX, Marcus Edward, 1st Lieut., Charleston, S. C., Fort Benning, Ga.
DEERE, Charles J., 1st Lieut., Memphis, Tenn., Fort McPherson, Ga.
DUNSTAN, Paul L., 1st Lieut., Atlanta, Ga., Fort Benning, Ga.
EBERHART, Charles A., 1st Lieut., Atlanta, Ga., Camp Croft, S. C.
EHLERT, William E., 1st Lieut., New Orleans, Camp Polk, La.
GAGER, Leslie Tracy, Major, Bay Pines, Fla., Camp Shelby, Miss.
GAHAGAN, Henry Cole, 1st Lieut., Alexandria, La., Camp Polk, La.
GIFFORD, John Pearl, 1st Lieut., Vero Beach, Fla., Fort Screven, Ga.
GILLIAND, Harold L., 1st Lieut., Nashville, Tenn., Fort Benning, Ga.
HAIK, George Michel, 1st Lieut., New Orleans, Fort Jackson, S. C.
HARRIS, William T., 1st Lieut., Troy, N. C., Camp Davis, N. C.
HASIE, James L., Captain, Electric Mills, Miss., Fort Oglethorpe, Ga.
HEATH, William H., Jr., 1st Lieut., Atlanta, Ga., Camp Claiborne, La.
HINTON, Andrew H., 1st Lieut., Miami, Fla., Fort Oglethorpe, Ga.
HOLBROOK, Joseph S., 1st Lieut., Statesville, N. C., Fort Bragg, N. C.
HOUSHOLDER, Charles H., 1st Lieut., Memphis, Tenn., Fort Oglethorpe, Ga.
HOWELL, James Marcus, 1st Lieut., New Iberia, La., Camp Livingston, La.
HUGHES, John Davis, Captain, Memphis, Tenn., Fort Oglethorpe, Ga.
HUNTER, John F. C., 1st Lieut., Magnolia, N. C., Fort Oglethorpe, Ga.
JENKINS, Hughes B., Major, Donalsonville, Ga., Camp Livingston, La.
KELLEY, Oscar Lee, 1st Lieut., Raiford, Fla., Fort Oglethorpe, Ga.
KING, Charles M., 1st Lieut., Natchitoches, La., Fort Jackson, S. C.
LANGLEY, Francis H., Major, St. Petersburg, Fla., Camp Croft, S. C.
LOVELESS, James A., 1st Lieut., Nashville, Tenn., Fort Benning, Ga.
PATTERSON, Joseph H., 1st Lieut., Nashville, Tenn., Fort McPherson, Ga.
PHILLIPS, Herbert S., 1st Lieut., Holly Springs, Miss., Fort McPherson, Ga.
SCANLON, John Joseph, 1st Lieut., Winter Gardens, Fla., Fort McPherson, Ga.
SCHAPIRO, Mark Meyer, 1st Lieut., Birmingham, Ala., Fort McPherson, Ga.
STEWART, Marcus J., 1st Lieut., Memphis, Tenn., Fort McPherson, Ga.
WALKER, Richard H., Jr., Captain, Orlando, Fla., Fort Benning, Ga.
WARR, Otis S., Jr., 1st Lieut., Memphis, Tenn., Camp Claiborne, La.
WHITE, Henry C., 1st Lieut., LaFayette, La., Fort McPherson, Ga.
WILSON, Harry F., Major, Columbia, S. C., Fort George G. Meade, Md.

Orders Revoked

BASS, Beaty Lee, 1st Lieut., Winston-Salem, N. C.
CROFT, Theodore G., Lieut. Col., Jacksonville, Fla.
DASPIT, Dudley Joseph, 1st Lieut., Montgomery, Ala.
FARRIOR, James Harvey, 1st Lieut., Montgomery, Ala.
GRAY, Cyrus L., Jr., 1st Lieut., Durham, N. C.
HIGHTOWER, Russell G., Captain, Birmingham, Ala.
HOLBROOK, Joseph S., 1st Lieut., Statesville, N. C.
McCULLOUGH, George C., 1st Lieut., Birmingham, Ala.
McLAURIN, James W., 1st Lieut., Baton Rouge, La.
STABLER, Ernest V., 1st Lieut., Greenville, Ala.
VARINO, George A., 1st Lieut., Monroe, La.
WHITLEY, James Roger, 1st Lieut., Chattanooga, Tenn.

CORRECTION

Lieutenant Manns.—In the Medical Preparedness section of THE JOURNAL, May 31, page 2513, under the Fourth Corps Area, the name 1st Lieut. John Adam Banns should have been printed 1st Lieut. John Adam Manns.

ORGANIZATION SECTION

MEDICAL AND SURGICAL CARE, INC., UTICA, N. Y.

The Medical and Surgical Care, Inc., is a nonprofit medical expense indemnity plan incorporated to provide cash indemnity insurance for medical service to subscribers in the following counties in New York: Chenango, Clinton, Essex, Franklin, Fulton, Herkimer, Lewis, Madison, Montgomery, Oneida and St. Lawrence.

Medical and Surgical Care, Inc., was the first medical expense indemnity plan to obtain a permit to operate under the provisions of article IX-C of the New York insurance laws. This recent amendment to the New York insurance laws provides that such medical expense indemnity plans shall operate under the supervision of the New York State Department of Insurance and the State Department of Social Welfare.

All employed persons and their dependents living in the counties mentioned who are subscribers of Hospital Plan, Inc., the hospital service plan in that area, are eligible to enroll in groups of five or more to the Medical and Surgical Care Plan. Subscribers have free choice of physician. Persons over 65 years old are not eligible for membership. Married women are not accepted unless their husbands are members of the plan.

The plan offers two contracts. One contract covers medical services in hospital, office or home, the other is limited to indemnity for medical services in a hospital only. The services provided under each contract and the premium rates are as follows:

CONTRACT I. MEDICAL AND SURGICAL CARE IN THE HOSPITAL, OFFICE OR HOME

Benefits:

$225 limit for any person entitled to receive benefits hereunder.

$325 limit for any two persons in one family entitled to receive benefits hereunder.

$425 limit for any three persons or more in one family (but not over $225 for any one person) entitled to receive benefits hereunder.

—— Twelve maternity postpartum calls, necessary antepartum care and delivery. Also care of newborn baby for twelve days.

—— Thirty physical therapy treatments, one half the cost to be paid by the plan for each person enrolled.

—— No limit of anesthesia for any enrolled person.

$ 75 for physicians', surgeons' or osteopaths' calls in home, office or hospital for each person enrolled, in addition to maternity and surgery.

$ 50 of x-ray diagnosis for each enrolled person.

$ 50 of x-ray therapy and radium treatments for each person enrolled.

$ 35 of laboratory examinations in office or hospital for each person enrolled.

$100 limit of tests and treatments for allergy, one half the cost to be paid by the plan for each person enrolled.

$225 of surgery for any one person enrolled.

In case of hospitalization anywhere, the attending physician, surgeon or osteopath must be acceptable to the hospital before practicing therein.

Deductible Clause:

During the first contract year the first $6 of expense for illness, examination and treatment for any one family must be paid by the subscriber. Subsequently the cost of the first two home or office calls of each separate illness is paid by the subscriber.

Cost:

	Month	Quarter
Gainfully employed subscriber	$1.40	$4.20
Spouse and each dependent from the ages of 16 through 18 years	1.15	3.45
All children between the ages of 1 and 16 years	0.75	2.25

(This one payment covers all children under 16 years regardless of number.)

CONTRACT II. MEDICAL AND SURGICAL CARE IN THE HOSPITAL ONLY

Benefits:

$225 limit for any one person entitled to receive benefits hereunder.

$325 limit for any two persons in one family entitled to receive benefits hereunder.

$425 limit for any three persons in one family (but not over $225 for any one person) entitled to receive benefits hereunder.

—— Twelve maternity postpartum calls, necessary antepartum care and delivery. Also care of newborn baby for twelve days.

$ 25 for anesthesia services for each one enrolled.

$ 40 of physicians' calls in an approved hospital for medical illness for each one enrolled, in addition to maternity and surgery after-care.

$20 of physicians' calls in home or office when necessary within thirty days after discharge from the hospital for each person enrolled.

$ 25 of x-ray services and radium treatments for each person enrolled.

$ 25 of laboratory examinations in the hospital for each person enrolled.

$225 of surgery for any one person enrolled.

In case of hospitalization anywhere, the attending physician, surgeon or osteopath must be acceptable to the hospital before practicing therein.

Deductible Clause:

The first $10 of the expense of illness, examinations and treatment for each family enrolled is paid by the subscriber, when a subscribing member is hospitalized.

Cost:

	Month	Quarter
Gainfully employed subscriber	$0.80	$2.40
Spouse and each dependent from 16 through 18 years	.75	2.25
All children of subscriber 1 to 16 years	.65	1.80

(This one payment covers all children under 16 years regardless of number.)

Exclusions Under Both Contracts:

1. Care resulting from recent pregnancy, occurring prior to issuance of contract.
2. Maternity and antepartum care, hernia, tonsillectomies, occuring within ten months of effective contract date.
3. Care available for subscribers by compensation.
4. Drugs, medicine, dentistry, eye glasses and appliances not usually furnished by physician.
5. Services of more than one physician at one time.
6. Any added fee that physicians usually charge for calls made after 10 p. m.
7. Blood transfusions are included, but not payments to donor or cost of blood matching.
8. Services will not be rendered for conditions, diseases or ailments existing at time of subscriber's application. Those may not enroll who had, prior to joining plan, cancer, diabetes, osteomyelitis, chronic nephritis, coronary thrombosis, pernicious anemia or insanity.

Physicians are paid by the plan for services rendered to subscribers according to a fixed schedule of fees. These fees are approximately the same as those paid under the workmen's compensation law. The agreement between the participating physicians and the Medical and Surgical Care, Inc., provides that if at the end of any monthly accounting period the corporation does not have sufficient funds to pay all claims against it, the corporation, after deducting for operating expenses for the following month and paying creditors, other than participating physicians, will then pay the claims of the participating physicians on a pro rata basis. Physicians are paid directly by the plan and subscribers are indemnified with a receipted bill for the medical and surgical services they have received.

The managing director, H. B. Stephenson, of the Hospital Plan, Inc., of Utica, N. Y., is also managing director of the Medical and Surgical Care, Inc., and the enrolments for the two plans are handled by the same office, although separate accounts are maintained for each plan. At present only subscribers to the Hospital Plan are solicited for the Medical Plan.

The Hospital Plan also sent out nearly 50,000 questionnaires regarding a nonprofit medical plan. Over 80 per cent of the cards were returned, showing interest in the plan. The Hospital Plan offered facilities of office, personnel and equipment without charge excepting for out of pocket expense. This offer also agreed that, after the enrolment of 5,000 subscribers in the Medical Plan, expenses would be prorated between the Hospital Plan and the Medical Plan.

The by-laws state that at least one third of the directors shall be persons other than physicians and at least one third shall be physicians duly licensed to practice in the state of New York. At present ten out of eighteen directors are physicians.

Subscribers have free choice of physicians. Participating physicians agree to accept as complete remuneration for their services the payment provided by the plan. Other physicians, either not participating or in localities where the plan is not licensed to operate, may be given two thirds of the payment according to the plan's fee schedule and may then charge the patient an additional fee to cover the remainder of their services.

The plan went into operation in April 1940, and up to the present time it has been possible to balance the books without drawing on lines of credit available. Membership has passed the 2,000 mark and is being extended to new localities as fast as arrangements can be completed.

MEDICAL ECONOMIC ABSTRACTS

PROBLEMS OF AMERICA'S NEEDY FARMERS

"Our farm population is steadily growing" says the Report of the Administrator of the Farm Security Administration for 1940. Each year that population is increasing by about 445,000 youths. This increase is highest in the poorest counties —in the Appalachians, the Cotton Belt, Cut-Over section, the Great Plains and the Southwest. There is no corresponding increase in the demand for laborers in urban localities, and there is no room for additional farmers on the land. In fact, available farm land is shrinking through erosion. Mechanization and improvements in seed, breeding stock and general farm practices are reducing the demand for farmers on the available farms.

The Farm Security Administration has been trying to meet this with a program of rehabilitation by which more than a million families have been helped to a new start. This work is done by education and by loans, which in 1940 amounted to $93,000,000 to 286,000 families. Since the beginning of the program in 1935, $507,368,664 has been lent to 856,024 families. Although much of this money has not yet fallen due, $152,386,930 had been collected on principal due up to June 30, 1940, and it is estimated that at least 80 per cent of all the money lent will eventually be repaid.

Because it was found that sickness added greatly to the risks of repayment, a medical program has been "worked out in close cooperation with the state medical associations and local medical societies."

Every plan is founded on three basic principles: (1) Each family has a free choice of its physician from among the participating doctors; (2) fees are paid by every participating family at the beginning of the operating period and are held by a bonded trustee; (3) fees are based on the families' ability to pay, as indicated by their farm-management plans and records. . . .

Benefits covered in the plan usually include (1) ordinary medical care, including examination, diagnosis and treatment in the home or in the office of the physician; (2) obstetric care; (3) ordinary drugs; (4) emergency surgery; (5) emergency hospitalization.

Dental services have been added in several localities.

The amounts paid for medical care vary widely, but "A typical payment schedule for medical care in a low income county is $18 annually for man and wife plus $1 for each child, the maximum payment being $26 per family."

More than eighty thousand families have joined such plans in six hundred and thirty-four counties in thirty-one states. Medical care programs have also been organized on fifty-six resettlement projects, and specialized programs have been developed for migrants in California and Arizona which are now being extended to the Pacific Northwest, Texas and Florida.

"A strong reviewing committee, drawn from the physicians' ranks, limits any possible abuses by the doctors. . . . Payments to physicians the country over average approximately 65 per cent of total bills presented."

STANDARD OIL NEW JERSEY MEDICAL SERVICE

The general company policy throughout the entire domestic organization, says the anniversary number of the *Medical Bulletin*, June 1941, of the Standard Oil Company of New Jersey, is that "diagnostic facilities only are available and employees are urged to consult their own family physicians for any form of treatment." Under this plan there was in 1940 "an average Lost-Time rate of 5.19 days per employee." This includes all time lost with no such "waiting period" deducted as is found in most such statistics. (It is less than half the rate for industrial employees insured under compulsory sickness insurance in Germany and Great Britain.) In the producing field department a prepayment medical and hospitalization plan has recently been inaugurated. Although this plan is underwritten by an outside insurance company, it is supervised by the medical department of the firm. This plan provides a cash benefit according to the following schedules:

Private Room: A maximum allowance of $150 for hospital room for one disability, not to exceed $5 a day.

Doctor's Fee: Up to $3 per visit and up to $45 a year. Employee entitled to home, office or hospital calls; dependents entitled to hospital calls only. Absence from work not necessary. Free choice of doctors.

Surgeon's Fees: Not to exceed $75 surgeon's fee for major operation, and $25 surgeon's fee in minor operation.

(Tonsillectomies come under minor operations.)

(The surgeon's fees include postoperative visits but do not include the hospital fees, which are $10 for operating room, $10 anesthetic and $5 laboratory fee. These fees are paid in addition to the surgeon's fee.)

Operating room: Not to exceed $10.
Anesthetic: Not to exceed $10.
Laboratory fee: Not to exceed $ 5. (excluding teeth).
Premium: $2 a month per employee.

The plan is entirely voluntary and in the beginning, April 1, 1939, the employees were "rather cautious about participating." This resulted in adverse selection, and a drive to encourage enrolment was put on, and "it is expected that, by April 1, 1941, 75 per cent or more of the employees will have participated."

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. W. W. BAUER:

July 22—Conference of Health Officers of New York Metropolitan Area, Bethpage State Park, Nassau County, N. Y.

DR. MORRIS FISHBEIN:

July 26—Writers' Conference, Lake Forest, Ill.

July 29—County Medical Societies, Rotary and Kiwanis, Kane, Pa.

July 30—Interstate Medical Meeting, Chautauqua, N. Y.

ABSTRACT OF MINUTES OF MEETINGS OF BOARD OF TRUSTEES HELD IN CLEVELAND, JUNE 1-5, 1941

A full day meeting of the Board was held on Sunday, June 1, and meetings of shorter duration were held on other days during the week of the annual session.

COMMISSION ON PAN AMERICAN RELATIONS

The following commission was appointed by the Board, in accordance with the action of the House of Delegates with regard to developing the annual session to be held in Atlantic City in 1942 as a Pan American meeting: Drs. W. A. Sawyer, New York; Hugh S. Cumming, Washington, D. C., and Howard R. Hartman, Rochester, Minn., and, ex officio, Drs. James A. Paullin, Atlanta, Ga.; Frank H. Lahey, Boston; Olin West, Chicago, and Morris Fishbein, Chicago.

SPANISH PERIODICAL

Tentative approval was given for the publication of a Spanish periodical to contain abstracts of material appearing in all of the Association's publications. Negotiations for this periodical are being carried on with the coordinator for Pan American affairs of the federal government. The periodical is to be circulated to the membership of the official medical societies in Central and South America, Cuba, Mexico and Puerto Rico.

ADDITION TO HEADQUARTERS BUILDING

Authorization was given for the erection of a three story and basement structure, 80 by 100 feet, at the east end of the headquarters building to provide for much needed office and storage space.

MEDICOPHARMACEUTIC CONFERENCE

The Board of Trustees directed the Council on Pharmacy and Chemistry to arrange for a medicopharmaceutic conference with a view to developing more definite relations and better cooperation between pharmacy and medicine.

APPOINTMENTS

Dr. James P. Leake was elected to succeed Dr. C. W. Edmunds on the Council on Pharmacy and Chemistry and Dr. Charles Glenville Giddings Jr. to succeed Dr. Isaac A. Abt on the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.

HEALTH OF INTERNS

A report on the health of interns, prepared by the Council on Medical Education and Hospitals at the request of the Board of Trustees, was presented and was approved for publication in the Student Section of THE JOURNAL.

GIFT OF PORTRAIT OF DR. NATHAN SMITH DAVIS

The Board gratefully received from Mrs. John Davis Keals a portrait of Dr. N. S. Davis, which has been hung in the Assembly Hall at headquarters.

REPRESENTATIVES TO AMERICAN MUSEUM OF HEALTH

Drs. W. W. Bauer, Arthur W. Booth and Morris Fishbein were authorized to accept invitations to become members of the Scientific Advisory Board of the American Museum of Health.

PHYSICIANS FOR SERVICE IN GREAT BRITAIN

The Board authorized Dr. Fishbein to continue his cooperation with the American Red Cross in its endeavor to secure physicians for voluntary service with the British army and British emergency medical service.

APPOINTMENT OF OFFICERS AND COMMITTEES

The following officers and committees were appointed for the ensuing year: Chairman, Dr. Arthur W. Booth; Secretary, Dr. E. E. Irons; Executive Committee and Finance Committee, Drs. James R. Bloss (chairman), E. E. Irons and R. L. Sensenich; Committee on Scientific Exhibit: Drs. Roger I. Lee (chairman), E. L. Henderson and Ralph A. Fenton.

MISCELLANEOUS

Other matters too numerous to mention here were considered by the Board at its several meetings. Some of these, however, will be reported on later.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 4965 has passed the House and the Senate, making appropriations for the Army for the fiscal year ending June 30, 1942. The Senate Committee on Appropriations recommended that the authorization for the employment of osteopaths as interns be deleted. On the floor of the Senate, however, the authorization was reinstated, principally on the insistence of Senator O'Mahoney of Wyoming. The authorization is permissive in form and will remain in force for a period of one year. H. R. 3484 has been reported to the House, providing that reserve officers of the Army who were called or ordered into active military service by the federal government for extended military service in excess of thirty days on or subsequent to Feb. 28, 1925, other than for service with the Civilian Conservation Corps, and who are now disabled from disease or injury contracted or received in line of duty while so employed shall be entitled to receive the same retirement pay and hospital benefits as are now or may hereafter be provided by law or regulation for officers of corresponding grades and length of service of the Regular Army.

Bills Introduced.—S. 1569, introduced by Senator Reynolds, North Carolina, proposes to amend the Soldiers' and Sailors' Civil Relief Act of 1940 to provide for the termination of leases covering property occupied for professional, business, agricultural or similar purposes where any such lease has been or may be executed on his own behalf by any person who is or may hereafter be in military service under the provisions of the Selective Training and Service Act or under the Public Resolution authorizing the President to call out the reserve units. S. 1642, introduced by Senator Reynolds, North Carolina, extends the provisions of the Longshoremen's and Harbor Workers' Compensation Act, with some modifications, to include injury or death of any employee engaged in any employment at any military, air or naval base acquired after Jan. 1, 1940 by the United States from any foreign government, irrespective of the place where the injury or death occurred. S. 1652, introduced by Senator Bone, Washington, provides for medical care, subsistence and treatment in private hospitals and medical attention by civilian physicians and surgeons for officers and enlisted men in the military and naval forces of the United

States when on an authorized furlough or leave of absence. H. R. 4943, introduced by Representative Edelstein, New York, provides workmen's compensation for employees of carriers engaged in interstate transportation by motor vehicles. The bill would devolve a duty on an employer to furnish such medical, surgical and other attendance or treatment, nurse and hospital service, medicine, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. If the employer fails to supply the same, after request by the injured employee, such injured employee may do so at the expense of the employer. H. R. 5051, introduced by Representative Jackson, Washington, and H. R. 5130, introduced by Representative Oliver, Maine, propose to extend the benefits of the United States Public Health service to any person employed on board in the care, preservation or navigation of any vessel engaged in commercial fishing, including persons employed in the service of those engaged in the care, preservation or navigation of such fishing vessels.

WOMAN'S AUXILIARY

Mrs. McReynolds Dies

Mrs. John O. McReynolds of Dallas, Texas, a past president of the Woman's Auxiliary to the American Medical Association (1927-1928), passed away on June 24. At the annual meeting of the auxiliary in Cleveland, June 2-6, the auxiliary made Mrs. McReynolds an honorary life member.

Colorado

The Denver County medical auxiliary is sponsoring the Women's Field Army of the American Society for the Control of Cancer in Denver. At the annual president's day, March 17, an educational film called "Choose to Live" was shown and Dr. W. W. Haggart talked on cancer. Other guests were the presidents of the federated clubs of Denver. A bridge benefit held February 12, called "A Salute to Health," was given to stimulate interest in the movement. Money from this will be used for an educational program in Denver. Dime banks are being given out to stimulate membership.

Nebraska

The auxiliary to the Lancaster County Medical Society met March 3 at the home of Mrs. C. H. Arnold for a white elephant sale and tea. Funds obtained from the sale are to be used for the auxiliary's continuous project—*Hygeia* in all public schools in Lincoln.

A meeting of the auxiliary to the Omaha-Douglas County Medical Society was held in Omaha on January 28. The President, Mrs. Charles P. Baker, spoke on the "Purpose and Accomplishments of the Woman's Medical Auxiliary." Mrs. C. W. Pollard of Peru spoke on legislative problems. The courtesy committee, consisting of Mesdames L. A. DeLanney, C. L. Bantin, E. M. Walsh and W. H. Schmitz, served a dutch lunch to 125 members of the medical society and others in the Medical Arts Tea Room. At a meeting February 18 the treasurer, Mrs. R. G. Lewis, reported that $53 had been sent to pay for the gift subscriptions to *Hygeia* for every public and parochial school in Omaha. Dr. F. Lowell Dunn presented the speakers in a panel discussion of "The Weaknesses of Our Nutritional Defenses."

Virginia

The auxiliary to the Norfolk County Medical Society met January 20. Mrs. H. G. Parker, director of public welfare, spoke on "Governmental Problems in Norfolk in Connection with Defense Activities."

The auxiliary to the Northampton-Accomac Medical Society met in January at the home of Mrs. W. J. Sturgis of Nassawadox. The president, Mrs. J. L. De Cormis, presided. Dr. T. F. McGough, the health officer of Northampton County, talked on "The Need of Northampton and Accomac Counties from a Medical Standpoint." Mrs. G. W. Holland, president of the state auxiliary, gave a short history of other auxiliaries in the state. Mrs. E. W. P. Douning gave two original poems. Mrs. John P. Hamilton read "The Story of Jane Todd Crawford." This auxiliary has placed *Hygeia* in four high schools and one beauty parlor and also contributed $45 for the purchase of two chairs for patients' rooms in the Nassawadox Hospital.

Wisconsin

The March 10 meeting of the Dane County auxiliary was held in Madison at the home of Mrs. Frank K. Dean. Mrs. Irma Williams and Miss Carolyn Schlattman, Dane County nurses, gave a résumé of work being done in the county through the use of the Loan Closet, which is furnished by the auxiliary. The Loan Closet is stocked with beds, wheel chairs, bedding, layettes and other items. An additional $20 was voted for this work at this meeting. Mrs. Stanley Briggs addressed the meeting on pending legislation.

The Fond du Lac auxiliary held a dinner meeting in March at the home of Mrs. L. J. Simon. Mrs. A. M. Hutter, president, announced that two parties would be given in the interest of the sponsorship of a Girl Scout troop, which is the philanthropic project of this auxiliary. A musical program was presented by 3 members, Mrs. L. J. Keenan, vocalist; Mrs. S. A. Thiesen, pianist, and Mrs. E. V. Smith Jr., violinist. Mrs. E. L. Watson of Ripon presented a paper on "The Bible in Modern Literature."

At the March meeting of the Rock County auxiliary in Beloit it was decided to form a study group. Mrs. C. P. Spaulding, instructor in the Beloit vocational school, gave a talk on the history of hooked rugs. Many rugs were on display. Mrs. H. E. Kasten, president of the auxiliary, appointed delegates to the national and state conventions; delegates to Cleveland will be Mrs. W. T. Clark, Janesville, and Mrs. O. W. Friske, Beloit, alternate.

The Waukesha County auxiliary met in March in Hartland. Mrs. J. B. Noble of Waukesha reported that photographs of all county physicians are being secured along with their histories. Mrs. W. H. Oatway Sr. spoke on medical legislation and Mrs. W. D. James on our medical defense program. The auxiliary met with Mrs. James Hassall at Rogers Memorial Sanitarium in Oconomowoc, April 2. Mrs. T. H. Nammacher of Waukesha presided. It was voted to purchase three subscriptions to the *Bulletin* of the Auxiliary and to donate $10 to the county council of child welfare. Miss Helen St. George, an investigator for the welfare relief department and the WPA, discussed the problems associated with her position.

The Winnebago County auxiliary met in Menasha March 24 with Mrs. W. N. Linn of Oshkosh presiding. A talk on "Medical Education Today" was given by Mrs. T. D. Smith, Menasha, who took her information from Dr. Fishbein's book dealing with the changing medical work throughout the United States. Mrs. R. H. Bitter of Oshkosh spoke to the group on public relations projects.

The Dane County auxiliary has announced a public relations tea to be held May 12 at the Y. W. C. A. in Madison. Dr. Paul C. Barton of the Bureau of Investigation of the American Medical Association, Chicago, will be the speaker.

The auxiliary to the Kenosha County Medical Society met February 4 in Kenosha and voted to purchase 100 copies of the pamphlet "Health Achievements in Wisconsin" for distribution in the schools. Dr. Helen Binnie reviewed the book "Born in Paradise" by Armin von Tempski.

The luncheon of the auxiliary to the Medical Society of Milwaukee County, February 14, had an attendance of 85 members. Dr. Timothy Howard, president of the Milwaukee County Medical Society, talked on cooperation. George Crownhart, executive secretary to the state medical society, discussed the basis for sound sickness care and pending health legislation. A symposium on telephone technic for the doctor's wife was conducted by the study group. Mrs. Lillian English of the Physicians' Service Bureau stressed these points: the proper way to answer the telephone; whether or not advice should be given; how to obtain the facts for the doctor; training a maid to answer the telephone intelligently, and how the bureau assists in locating physicians.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Society News.—Dr. E. Payne Palmer, Phoenix, Ariz., discussed "Emergency Treatment of Surgical Abdominal Traumas" before the Hollywood Academy of Medicine, June 12.——Dr. Jacob Kasanin, San Francisco, discussed "A Study of the Disturbances of Intellect in Schizophrenia" before the Los Angeles Society of Neurology and Psychiatry, May 21.

Hickman Medal Awarded.—Dr. Arthur E. Guedel, Los Angeles, has been awarded the Hickman Medal of the Royal Society of Medicine, according to the *Lancet*. Mr. John G. Winant, the American ambassador, was to receive the medal for Dr. Guedel at a meeting of the society, June 5. Dr. Guedel, who specializes in anesthesia, received the award on the recommendation of the section of anesthesia of the Royal society. He graduated at the Indiana University School of Medicine, Indianapolis, in 1908.

Musgrave Memorial Chair in Tropical Medicine.—A chair to conduct special research in tropical medicine will be established in the Pacific Institute, Hooper Foundation for Medical Research, University of California, Berkeley, under provisions in the will of the late Mrs. Florence B. Musgrave, newspapers recently reported. The chair will be known as the William E. Musgrave Memorial in honor of Mrs. Musgrave's husband, who at one time served as secretary of the California Medical Association. The will stipulates that more than $50,000 be allowed to establish the chair and further specifies that a professorship be created to conduct the study in tropical medicine.

COLORADO

Dr. Coutard Goes to Colorado Springs.—Dr. Henri Coutard, formerly of Paris and more recently of the Chicago Tumor Institute, Chicago, has been placed in charge of the new roentgen ray and radium unit of Glockner Sanatorium and Hospital, Colorado Springs. The new unit is in the Penrose Pavilion, which was opened on June 8 for the study and care of malignant diseases, and the construction of which was made possible by the late Spencer Penrose of Colorado Springs and Broadmoor. After his death the El Pomar Foundation and administrators of the hospital erected a two story annex to the hospital. According to the *Rocky Mountain Medical Journal* the ground floor contains fluoroscopic, diagnostic, physical, superficial and high voltage therapy equipment, and radium facilities adequate for radiation therapy for any type of malignant lesion; the upper floor contains operating rooms, sterilizing rooms, dressing rooms, clinical-pathologic laboratory and record rooms. Associated with Dr. Coutard are Drs. James W. McMullen, Denver, and Lloyd R. Allen, Colorado Springs. Dr. William P. McCrossin Jr. is chief of staff of the Penrose Tumor Clinic.

DELAWARE

Du Pont Institute for Crippled Children.—The Alfred I. Du Pont Institute of the Nemours Foundation was dedicated in Wilmington, June 14, with Dr. Thomas R. Brown, Baltimore, chairman of the medical advisory board, presiding. Addresses were delivered by Dr. Alfred R. Shands Jr., medical director of the institute, on "Alfred I. Du Pont Institute of the Nemours Foundation" and Francis P. Gaines, Ph.D., president, Washington and Lee University, Lexington, Va., "Alfred I. Du Pont, the Man." The institute was opened for admission of crippled children on July 1, 1940. It was financed by a bequest of $1,000,000 in the will of Mr. Alfred I. Du Pont, who died on April 29, 1935. The trustees first incorporated the Nemours Foundation under the laws of Florida, Sept. 2, 1936, and ground was broken June 20, 1939. The institute has eighty-five beds, seventy-two of which are occupied at the present time. The research laboratory division is operated with Dr. Lee E. Farr as the director of research, Dr. Douglas A. MacFadyen as biochemist and Dr. Daniel Murray Angevine as the pathologist and bacteriologist. The research department has a fifteen bed research ward. The laboratories were opened on July 1.

DISTRICT OF COLUMBIA

President's Night.—The Order of Merit of the Medical Society of the District of Columbia was recently presented to Dr. Edward Y. Davidson at a special meeting of the society designated "President's Night." The certificate will be awarded annually in the future to the physician deemed to have made the most worthwhile contribution to the society. Dr. Davidson was president of the society in 1916 and sponsored erection of the present headquarters. Honorary membership was conferred on Charles S. Baker, attorney for the society. Dr. Daniel L. Borden, president, gave an address entitled "'Stand By." A program of American music was rendered by members of the society and their families and the doctors' string quartet.

GEORGIA

State Medical Election — Crawford Long Prize Awarded.—Dr. James A. Redfearn, Albany, was chosen president-elect of the Medical Association of Georgia at its recent annual meeting in Macon and Dr. Allen H. Bunce, Atlanta, was installed as president. Other officers include Drs. Hudnall G. Weaver, Macon, and Bannester Lester Harbin, Rome, vice presidents. Dr. Edgar D. Shanks, Atlanta, was reelected secretary. The 1942 session will be in Augusta, April 28-May 1. Dr. Robert B. Greenblatt, professor of experimental medicine, University of Georgia School of Medicine, Augusta, received the Crawford W. Long Memorial Award for his paper showing outstanding research on female glandular ailments. A fund of $10,000 was announced at the meeting, raised by members of the association, to carry on a campaign for health education in rural districts and to provide care for needy physicians and their families.

ILLINOIS

Psittacosis in Oak Park.—One case of psittacosis was recently reported in Oak Park. The patient recovered. According to *Public Health Reports*, the infection was apparently contracted from love birds. Three birds purchased by the patient in Chicago died within a period of two or three months, the last one on April 5.

State Medical Election.—Dr. Edward H. Weld, Rockford, was named president-elect of the Illinois State Medical Society at its recent meeting in Chicago and Dr. Charles H. Phifer, Chicago, was inducted into the presidency. Springfield was chosen for the 1942 meeting. Drs. Hubbard P. Saunders and Fred H. Muller, Chicago, were chosen vice presidents. Dr. Harold D. Camp, Monmouth, is the new editor of the society's journal. He will continue as secretary-treasurer. Dr. Clayton J. Lundy, Chicago, a member of the staffs of La Rabida Jackson Park Sanitarium and Rush Medical College, Chicago, received the society's first medal for the best scientific research exhibit.

State Hospital Quarantined for Typhoid.—The East Moline State Hospital, East Moline, has been quarantined for typhoid after the development of 5 cases in the last two weeks, newspapers reported, June 25. It is believed that the disease was introduced into the hospital by a carrier admitted recently as a patient, it was stated. The hospital has about 1,300 patients, but all the typhoid cases were in one ward of 70 men. Newspapers also announced on June 25 that a new water supply was to be started at the Manteno State Hospital for the Insane early in July. A typhoid outbreak occurred at Manteno in 1939 which was responsible for many deaths and more than 400 cases of the disease.

Chicago

Branch Meetings.—The South Chicago Branch of the Chicago Medical Society was addressed, May 27, by Drs. Hollis E. Potter on "Roentgenology of the Chest" and Carl Werelius, "Explanation of Early Deaths in Bowel Obstruction."——Dr. Sidney O. Levinson discussed "Plasma and Serum Transfusion as a Blood Substitute" before the Irving Park Branch, May 27.

Child Research Grant Available.—Applications for the Elizabeth McCormick Child Research Grant of the Institute of Medicine of Chicago, consisting of $1,500, will be received up to October 15, the award to be made soon after this date. Projects should in a broad sense be in the field of pediatrics. All applications should be addressed to Dr. John Favill, secretary of the Elizabeth McCormick Child Research Grant, 122 South Michigan Avenue.

Hamilton Anderson Visits United States.—Dr. Hamilton H. Anderson, professor and head of the department of pharmacology, Peiping Union Medical College, Peking, China, is on a five months leave of absence. He expects to sail from

San Francisco August 1 to return to China. Dr. Anderson was a member of the staff of the Council on Medical Education and Hospitals, in charge of postgraduate education, prior to his appointment in China.

Dr. Fabricant Wins Casselberry Award.—Dr. Noah D. Fabricant, associate in the department of otology, laryngology and rhinology, University of Illinois College of Medicine, was presented with the Casselberry Medal and prize of $100 at the annual meeting of the American Laryngological Association in Atlantic City, May 29. Dr. Fabricant received the award for his research on the common cold and specifically for his studies which determined the acidity of the mucous membranes of the nose. He graduated at the University of Illinois College of Medicine in 1928 and is 36 years of age.

IOWA

Outbreaks of Gastroenteritis.—Twenty-two persons were reported ill in an outbreak of gastroenteritis in Grinnell recently following a luncheon. In all but 3 instances, symptoms subsided the following day. Staphylococcus toxin was found to be the cause of the outbreak. Evidence of the bacteria was found in the egg salad, ham and creamed peas which were served at the luncheon. This cause was also held responsible for a small outbreak in Cedar Rapids recently, involving 4 young men who were sick after eating ham and mayonnaise sandwiches.

Portrait of Dr. Steindler.—Special exercises were held at the State University of Iowa College of Medicine, Iowa City, May 27, to mark the presentation to the university of the portrait of Dr. Arthur Steindler, professor and head of the department of orthopedic surgery. The portrait, a gift of former students and present staff members, is the work of Sidney Dickinson of New York. Dr. Steindler has been teaching at the university since 1913. Orthopedic surgeons came from all parts of the United States to honor their former teacher. The morning was spent in case demonstrations by staff members, and in the afternoon papers were presented by the staff and visiting alumni. In the evening a banquet was held, attended by two hundred and sixty-five colleagues and friends. The portrait was accepted by President Virgil M. Hancer for the university. At the noon luncheon a permanent Steindler Alumni Club was formed, which plans to meet annually in connection with the sessions of the American Academy of Orthopaedic Surgeons.

MICHIGAN

Personal.—Dr. Ira G. Downer, for five years secretary-treasurer of the Detroit Academy of Surgery, was recently elected president of the group.——Dr. Frank N. Wilson, Ann Arbor, was recently elected an honorary member of the Cardiac Society of Great Britain and Ireland.

Outbreak of Smallpox.—Twenty-two cases of smallpox in mild form were reported the first week in May in Port Huron. While an outbreak of 9 cases was reported in Richmond, just north of Mount Clemens in Macomb County, in January, the Port Huron outbreak is the first in which a significant number of cases has been found in any single area this year, the state department of health reported. Seventy-four cases of the disease had been reported this year up to May 28, 2 less than the total recorded for the entire year of 1940.

New Laboratory to Study Virus Diseases.—A laboratory will be established at the University of Michigan, Ann Arbor, under a grant of $30,000 from the National Foundation for Infantile Paralysis. The laboratory will temporarily be operated in the University Hospital but on completion of the new School of Hygiene and Public Health will be transferred there. Infantile paralysis and other virus diseases will be studied in the new laboratory, and field studies into nearby communities will be made to promote the work.

Clinic of Human Heredity.—The University of Michigan, Ann Arbor, has established a department of heredity as a division of the laboratory of vertebrate genetics to work in close cooperation with the medical school. A heredity clinic, to be conducted by the new department, has also been established with quarters in the University Hospital. It will secure the data necessary to determine the role played by heredity in the production of or predisposition to malformations and disease. The new department and clinic are the outgrowth of studies of heredity in animals which have been conducted in the laboratory of vertebrate genetics for many years and which were expanded this year to include certain problems of human heredity by a grant from the Rackham Research Fund.

Upper Peninsula Medical Meeting.—The Upper Peninsula Medical Association will meet at the Grand View Hospital in Ironwood, July 17-18, under the presidency of Dr. William E. Tew, Bessemer. The following will speak:

Dr. Herman O. McPheeters, Minneapolis, Treatment of Varicose Veins.
Dr. Clayton G. Weigand, Indianapolis, Practical Application of Vitamin Therapy.
Dr. James C. Sargent, Milwaukee, Excretory Urography in the Study of Urologic Disease.
Dr. Francis D. Murphy, Milwaukee, Clinical Application of the Sulfonamide Group of Drugs.
Dr. Leo G. Rigler, Minneapolis, X-Ray in Acute Conditions of the Abdomen.
Dr. Charles W. Mayo, Rochester, Minn. (subject not announced).
Dr. Ralph P. Sproule, Milwaukee, Eye Injuries.
Dr. Louis A. Buie, Rochester, Minn., Rectal Diseases.
Dr. Paul B. Magnuson, Chicago, Industrial Backache.
Dr. Solomon C. Freed, Chicago, Practical Application of Hormone Therapy.

MISSOURI

Professor of Anatomy Retires.—Dr. Robert J. Terry, professor of anatomy, Washington University School of Medicine, St. Louis, has announced his retirement. He will be succeeded by Edmund V. Cowdry, Ph.D., professor of cytology. Dr. Terry was born in St. Louis in 1871, graduating at the Missouri Medical College in 1895. This school was absorbed by the Washington University School of Medicine in 1899. Dr. Terry was dean of the Officers School of Oral and Plastic Surgery, U. S. Army, 1917-1918, and has served as president of the St. Louis Academy of Sciences and of the American Association of Physical Anthropologists. Dr. Cowdry received his degree at the University of Chicago in 1913, where he had taught anatomy for four years. He was associate in anatomy at Johns Hopkins University School of Medicine, Baltimore, from 1913 to 1917, when he went to Peiping Union Medical College. From 1921 to 1928 he was an associate member of the Rockefeller Institute for Medical Research. He has been professor of cytology at Washington University since 1928. He was chairman of the division of medical sciences of the National Research Council, 1930-1931.

NEW HAMPSHIRE

State Medical Election.—Dr. Charles H. Dolloff, Concord, was elected president of the New Hampshire Medical Society at the annual meeting at Manchester, May 13-14. Dr. Henry C. Sanders Jr., Claremont, was elected vice president and Dr. Carleton R. Metcalf, Concord, reelected secretary.

NEW JERSEY

State Medical Meeting and Election.—Dr. Elias J. Marsh, Paterson, was chosen president-elect and Dr. Thomas K. Lewis, Camden, was installed as president of the Medical Society of New Jersey at the one hundred and seventy-fifth anniversary meeting, which was held at Haddon Hall in Atlantic City, May 20-22. Drs. Ralph K. Hollinshed, Westville, and Joseph F. Londrigan, Hoboken, were elected vice presidents and Dr. Alfred Stahl, Newark, was reelected secretary. The program included a "General Anniversary Session" with speakers representing state agencies engaged in activities related to health; a symposium on peripheral vascular disease with Dr. Irving S. Wright, New York, as guest speaker, and a symposium on acute diseases of the abdomen, with Dr. George P. Müller, Philadelphia, as the guest. Dr. Israel J. Wolf, Paterson, received the society's prize essay award with a paper on the treatment of rickets with massive doses of vitamin D.

NEW YORK

Syracuse Alumni Meeting.—The annual alumni reunion of Syracuse University College of Medicine was held, May 29, with the following speakers on the day program:

Col. William C. Munly, U. S. Army, Washington, D. C., Medical Department Activities in the Training Program.
Dr. Edward M. Kent, Glenn Dale, Md., Recent Advances in Thoracic Surgery.
Dr. James Howard Means, Boston, Miscellaneous Topics on Thyroid.
Dr. Grover F. Powers, New Haven, Conn., Streptococcosis in Children.

Speakers at a banquet in the evening were Chancellor William P. Graham of the university, Dr. Herman G. Weiskotten, dean and professor of pathology at the medical school, and Dr. Thomas F. Manley, Norwich.

New York City

Society News.—Dr. James Ewing addressed the Society of Medical Jurisprudence, May 12, on "Problems in Traumatic Cancer."——Drs. William Bierman and Sidney H. Licht addressed the New York Physical Therapy Society, May 14, on "History of Fever Therapy" and "History of Electrodiagnosis" respectively.——Ross A. McFarland, Ph.D., and Dr. Ashton Graybiel, Boston, addressed a combined meeting of the New York Heart Association and the section of medicine of the New York Academy of Medicine, May 20, on "Neurocirculatory Adjustments During Flying," discussing physiologic and clinical aspects, respectively.——John R. Dunning, Ph.D., and Dr. John M. Kenney addressed the New York Roentgen Society, May 19, on "The Cyclotron and Its Possible Applications to Therapy" and "Use of Artificially Radioactive Substances in Cancer Therapy" respectively.——Dr. Ira S. Wile addressed the Bronx County Medical Society, June 18, on "The Problem Child: Medical, Psychological and Social Aspects."——Dr. Hugh Chaplin addressed the Medical Society of the County of Queens, May 27, on "Treatment of the Premature Infant."

OHIO

Cleveland Academy Awards Medal.—The Academy of Medicine of Cleveland presented its first distinguished service medal at its annual meeting, May 16, to Dr. John J. Thomas, who has practiced in Cleveland since 1895. Dr. Thomas graduated from Western Reserve University School of Medicine in 1893, afterward spending a period of study in Europe. He has served as associate clinical professor of obstetrics at Western Reserve and has been active in civic affairs.

Dr. Kemp to Succeed Dr. Upham.—Dr. Hardy A. Kemp, dean and professor of bacteriology and preventive medicine, University of Vermont College of Medicine, Burlington, has been appointed dean of Ohio State University College of Medicine, Columbus, to succeed Dr. John H. J. Upham, who is retiring. Dr. Kemp went to Vermont in 1939 from Baylor University College of Medicine, Dallas, Texas, where he was professor of bacteriology and preventive medicine. He graduated from St. Louis University School of Medicine in 1926 and went to Baylor in 1928 as associate professor of bacteriology and hygiene. He is 38 years old.

PENNSYLVANIA

Society News.—Charles D. Grosscup, Ph.D., and Dr. John Eiman, Abington, addressed the Dauphin County Medical Society, Harrisburg, June 3, on "Water and Solute Balance in Health and Disease," discussing theoretical considerations and clinical application in surgical and medical cases, respectively.——Dr. Bernard I. Comroe, Philadelphia, addressed the Harrisburg Academy of Medicine, June 17, on arthritis.——Dr. Jesse L. McCracken, Smithfield, addressed the Fayette County Medical Society, Uniontown, June 12, on "Arthritis from the Standpoint of the General Practitioner."

Philadelphia

Personal.—Dr. Esmond R. Long, Philadelphia, professor of pathology at the University of Pennsylvania School of Medicine and director of the Henry Phipps Institute, has been elected an honorary member of the Atheneum of the History of Medicine of Buenos Aires.——Dr. Ella Roberts has been appointed medical director of the Children's Heart Hospital, succeeding Dr. Oswald F. Hedley, U. S. Public Health Service, who served as acting director while making a survey of rheumatic fever in Philadelphia.

Society News.—Speakers at a meeting of the Philadelphia County Medical Society, May 1, were Drs. Charles H. Harney, on "Multiple Primary Malignant Disease"; Hubley R. Owen and Lewis C. Manges Jr., "Fractures of the Lower Third of the Tibia and Fibula," and Edward F. McLaughlin, "Ovarian Lesions Simulating Appendicitis."——Henry F. Vaughan, Dr.P.H., Detroit, delivered the seventeenth James M. Anders Lecture of the College of Physicians of Philadelphia, May 7, on "The Way of Public Health."——At a meeting of the Philadelphia Urological Society, May 12, the speakers were Drs. William J. Ezickson and Lester M. Morrison on "Role of the Liver and Thyroid as Metabolic Factors in the Production of Renal Calculi"; James F. McCahey, "Testis Hormone Deficiency: Diagnosis and Treatment with Testosterone Propionate," and Leroy W. LaTowsky, "Use of Sulfadiazine in the Treatment of Gonorrhea in the Male—A Study of Sixty Cases."

TEXAS

State Medical Election.—Dr. Judson L. Taylor, Houston, was chosen president-elect of the State Medical Association of Texas at the annual meeting in Fort Worth in May, and Dr. Neil D. Buie, Marlin, became president. Vice presidents elected were Drs. Caleb O. Terrell, Fort Worth; Mitchell O. Gibson, Lufkin, and Robert B. Touchstone, Lytle. The 1942 session will be held in Corpus Christi.

VIRGINIA

Personal.—Dr. Claude C. Coleman, Richmond, has been appointed to the board of visitors of the College of William and Mary, Williamsburg, of which he is an alumnus. He succeeds Mr. Edward R. Stettinius Jr., chairman of the priorities board of the Office of Production Management, Washington, D. C.——Dr. Willard L. Quennell has resigned as medical director of the Norfolk General Hospital and Mr. Willard P. Earngey Jr., superintendent of the Cherokee County Hospital, Gaffney, S. C., was appointed to succeed him.

Changes in Health Officers.—Dr. James M. Suter, Bristol, health officer of Bristol and Washington County, has resigned to enter military service. Dr. John G. McNiel, Bristol, formerly health officer of Montgomery County, will succeed Dr. Suter. Dr. Charles L. Savage, Ashland, has resigned in Hanover County to enter the field of industrial medicine and Dr. John D. Hamner Jr., Courtland, formerly in Southampton County, succeeded him. Dr. Hubert D. Crow, Lawrenceville, has been transferred to Southampton County. Dr. William P. Terry, Charlotte C. H., health officer of Charlotte County, has been called to military service, and Dr. Paul W. Bowden, Baltimore, who has just completed a course in public health at Johns Hopkins University, Baltimore, has been appointed to succeed him.

WASHINGTON

Annual Postgraduate Course.—The twenty-fifth anniversary course of lectures and clinics will be presented by the University of Washington, July 14-18, at the university and at King County Hospital, Seattle. The lecturers will be:

Dr. Howard C. Naffziger, professor of surgery, University of California Medical School, San Francisco.

Dr. Maurice Charles Pincoffs, professor of medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

Dr. Max Thorek, Chicago, who will lecture on surgical subjects.

Dr. John H. Stokes, professor of cutaneous medicine and syphilology, University of Pennsylvania School of Medicine, Philadelphia.

Dr. John B. D. Saunders, professor of anatomy and lecturer in medical history and bibliography, University of California Medical School, San Francisco.

PHILIPPINE ISLANDS

Medical Election.—Dr. Victorino de Dios, Manila, was elected president of the Philippine Medical Association at the annual meeting in April. Drs. Januario R. Estrada and Honoria Acosta-Sison, Manila, were elected vice presidents and Dr. Conrado D. Ayuyao, Manila, was elected secretary-treasurer for five years.

PUERTO RICO

Institute on Venereal Disease.—An institute for public health workers in the field of venereal disease was held, May 12-16, in Mayaguez under the auspices of the Mayaguez health unit. Dr. Domingo Nochera, health officer of Mayaguez, was in charge of the program, which consisted of round table discussions, field work, demonstrations of laboratory procedures and clinical demonstrations. One feature was a discussion of "Venereal Disease and the National Defense" led by Dr. Thomas H. D. Griffitts, U. S. Public Health Service, adviser to the Puerto Rico Department of Public Health. Participants announced included Dr. Eduardo Garrido Morales, health commissioner of the island; Col. William Denton or his representative from the U. S. Army Medical Corps, Puerto Rican Department; Comdr. James G. Dickson or his representative, Medical Corps, Tenth Naval District; Dr. Oscar G. Costa Mandry, San Juan, chief of the biologic laboratory of the insular department of health, and Dr. Jose Chaves, chief, bureau of public health units. Among other speakers were Drs. James A. Doull, Cleveland, visiting professor at the School of Tropical Medicine, University of Puerto Rico, under the auspices of Columbia University; Myron E. Wegman, assistant professor of child hygiene at the school and assistant director of the division of education and research in the Puerto Rico health department, and Ernesto Quintero, chief of the bureau of venereal diseases in the health department.

GENERAL

Board of Orthopaedic Surgery.—The American Board of Orthopaedic Surgery announces that its next examination will be in Washington, D. C., in January 1942. Officers of the board are Drs. Fremont A. Chandler, Chicago, president; John C. Wilson, Los Angeles, vice president, and Guy A. Caldwell, 3439 Prytania Street, New Orleans, secretary-treasurer.

New Searle Laboratories.—G. D. Searle & Co., Chicago, manufacturers of pharmaceuticals, announce that construction has started on their new building on the outskirts of Chicago in the Skokie district. The building will include the manufacturing plant, scientific laboratories and offices. It is a streamlined structure of 1,500 000 cubic feet content, having about three times the present space. It is of reinforced concrete, flat-slab construction and comprises three floors and a basement. The latter will be devoted almost wholly to social activities and includes a completely equipped auditorium for use by the employees and for meetings and lectures by local or visiting medical groups. Air conditioning will be installed throughout the building with provision for special conditions of temperature or humidity required for certain operations. Passageways are in general to be glass walled so that visitors or others may observe the processes without opening doors or entering production units, thus minimizing dangers of contamination. In other areas, notably the entire ampule department, where the utmost sterility is required, electrostatic air filters of newest design are to be employed, coupled with sterilizing ultraviolet lamps.

Home Study Courses in Ophthalmology and Otolaryngology.—The American Academy of Ophthalmology and Otolaryngology recently announced that its home study courses in the fundamentals of the two specialties, which were instituted in August 1940, will be given again this year. These courses are primarily intended for residents in specialized institutions that give no formalized instruction in fundamentals. The registration of four hundred and sixty-five for the first year, however, included many physicians who were preparing for examinations by the special boards and many who were practicing in small communities without facilities for postgraduate instruction, the committee reported. Each registrant receives on the first of each month a reading list. At the end of the month he receives twenty questions covering the material. These are answered and returned to the committee. The papers are corrected and graded by different groups of men. Each month one man is put in charge, and he divides the work among his group of assistants, all of whom have certificates from the examining boards. Corrected papers are then returned to each registrant for inclusion in a file that is supplied to him. The cost of a course is $10. The new courses will start on August 1. Registration should be in the hands of Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, by July 15 at the latest. Dr. Harry S. Gradle, Chicago, is in charge of the course in ophthalmology and Dr. Frank J. Novak Jr., Chicago, of that in otolaryngology.

Meeting of U. S. P. Board of Trustees.—The annual meeting of the board of trustees of the United States Pharmacopeial Convention was held in New York on May 24-25. The board received a committee of the council of the American Pharmaceutical Association to discuss questions of mutual importance concerning the U. S. Pharmacopeia and the National Formulary, and arrangements were made for further discussions early in 1942 of the principles of revision of the two works. Plans were made for reconvening the 1940 convention to consider the report of a committee appointed to revise the constitution and by-laws. Dr. Allen H. Bunce, Atlanta, Ga., chairman of this special committee, and Charles H. Rogers, Sc.D., Minneapolis, chairman of a subcommittee in charge of preparing a draft of the new constitution and by-laws, met with the trustees in New York for discussion of the redrafting. The object of the changes, as indicated by the 1940 convention, is to reduce the number of delegates, to insure a representative delegation and to simplify the general methods of procedure for the convention proper. The board also considered questions involving the U. S. Pharmacopeia XII, which is expected to appear later this year. Any texts not completed in time will be published in a supplement, it was decided. Descriptions of patented articles of sufficient therapeutic importance to be included in the U. S. Pharmacopeia will be prepared and in the absence of specific objections by the patent holders they will be included. In the case of specific objections, such products will be omitted. Members of the board are Evander F. Kelly, Pharm.D., Washington, D. C., chairman; Drs. Walter A. Bastedo and Cary Eggleston, New York, and Morris Fishbein, Editor of THE JOURNAL, Chicago; Ernest Fullerton Cook, Pharm.M., Philadelphia; Ernest Little, Ph.D., Newark, N. J.; Robert L. Swain, Pharm.D., New York, and Adley B. Nichols, Ph.D., Philadelphia, secretary. The officers of the board were reelected for the current year.

Special Society Elections.—Dr. Russell S. Boles, Philadelphia, was elected president of the American Gastro-Enterological Association at its recent annual meeting; other officers include Drs. Sara M. Jordan, Boston, and Abraham H. Aaron, Buffalo, vice presidents; John G. Mateer, Detroit, treasurer, and Jacob Arnold Bargen, Rochester, Minn., secretary.——Dr. Bruce H. Douglas, Detroit, was elected president of the National Tuberculosis Association at the annual meeting in San Antonio, Texas, in May, and Dr. James Burns Amberson Jr., New York, was named president-elect. This is the first time the association has had a president-elect. Vice presidents elected were Drs. Frederick H. C. Heise, Trudeau, N. Y., and Henry F. Carman, Dallas, Texas. Dr. Charles J. Hatfield, Philadelphia, was reelected secretary. The American Trudeau Society, the medical section of the association, elected Drs. Harold G. Trimble, Oakland, Calif., as president; William Atmar Smith, Charleston, S. C., vice president, and Julius L. Wilson, New Orleans, secretary. The 1942 meeting will be in Philadelphia.——Dr. Hiram Houston Merritt, Boston, was elected president of the American branch of the International League Against Epilepsy at its annual meeting in Richmond, Va., May 5. Vice presidents elected were Drs. David C. Wilson, Charlottesville, Va., and Milton Rosenbaum, Cincinnati, and Frederic A. Gibbs, Boston, was made secretary. Dr. Adolf Meyer, Baltimore, was elected vice president for America for the international organization.——Officers elected at the meeting of the American Institute of Nutrition recently in Chicago were Albert G. Hogan, Ph.D., Columbia, Mo., president; Leonard A. Maynard, Ph.D., Ithaca, N. Y., vice president, and Arthur H. Smith, Ph.D., Detroit, secretary.——Dr. Harvey B. Stone, Baltimore, was elected president of the American Surgical Association during its recent annual meeting in White Sulphur Springs, W. Va. Other officers include Drs. Loyal Davis, Chicago, and Daniel C. Elkin, Atlanta, Ga., vice presidents; Charles G. Mixter, Boston, treasurer, and Fordyce B. St. John, New York, secretary.——Dr. Clarence O. Sappington, Chicago, was chosen president-elect of the Central States Society of Industrial Medicine and Surgery at its annual meeting in Davenport in May, and Dr. Urban E. Gebhard, Milwaukee, was installed as president. Dr. Emery B. Neff, Moline, Ill., was named vice president and Dr. Frank P. Hammond, Chicago, was reelected secretary-treasurer.

Government Services

The Government Seeks Nurses

The U. S. Civil Service Commission has issued a notice pointing out that requirements for the position of junior graduate nurse, for which examinations were recently announced, have been modified. Written examination will not be required, and the visual requirements have been changed. Vision without glasses must be at least 20/100 (Snellen) in each eye and must be corrected to at least 20/20 in one eye and 20/30 in the other eye. Ordinary conversation must be heard at a distance of at least 15 feet, one ear. The salary for this position is $1,620. Appointments will be in the U. S. Public Health Service, Federal Security Agency, Veterans' Administration and the Indian Field Service, Department of the Interior.

Positions are also available for associate public health nursing consultants at $3,200 a year and assistant public health nursing consultants at $2,600. Competitors will not be required to report for examination at any place but will be rated on the extent of their education, on the extent and quality of their experience and on their fitness.

Because of the demand for eligible persons for the junior graduate nurse positions, applications will be accepted continuously until further notice. Applications for the public health nursing consultant positions must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than July 26.

The necessary application forms may be obtained from any first or second class post office, except in the following cities, where the forms must be obtained from the district headquarters of the civil service commission: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco, Honolulu, Balboa Heights, Canal Zone, and San Juan, Puerto Rico.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 24, 1941.

Transfusion of Blood Derivatives

At the Royal Society of Medicine Col. Lionel Whitby opened a discussion on the transfusion of blood derivatives. Transfusion should always be performed with a definite object—restoration of oxygen carrying capacity, for which red cells are essential, or restoration of blood volume, for which any innocuous fluid, well retained in the circulation, is suitable. Transfusion is rarely used to contribute leukocytes, platelets, clotting elements, complement or antibodies. Blood derivatives as a rule are efficient for restoring blood volume, but, with the exception of stored blood, are useless for restoring oxygen carrying capacity. Including stored blood, they are useless for contributing leukocytes or serologic constituents. Blood under a week old, properly taken and stored, is almost as good as fresh blood for restoring oxygen carrying capacity. The disadvantage of stored blood is the complexity of the apparatus required. The effect of saline or dextrose infusion is transient. The best replacement substance, and the one adopted in the army, is plasma-saline. Acacia-saline is efficient for maintaining blood pressure, but it is difficult to make two suspensions alike. The order of preference is whole blood, plasma, hemoglobin-Ringer solution, acacia-saline, isotonic saline and isotonic dextrose. The index of efficiency of plasma is its protein content, because crystalloids are rapidly excreted. The plasma produced by the army transfusion service has a protein content of 4 to 5 per cent. Its utility for blood loss was unequivocal.

In the treatment of more than 100 air raid casualties 165 pints of plasma, up to 56 days old, was used. The maximum given in any one case was 6 pints (3 liters). Its utility for blood loss proved unequivocal. Its use must be controlled by serial blood pressure examinations. The rise of blood pressure to be expected from each pint transfused is between 10 and 20 mm. of mercury. The commonest cause of failure of the blood pressure to rise with transfusion is continued bleeding. The need for transfusion rarely ends in the resuscitation ward. The patient should be sent to the operating room with the cannula tied in a bottle of slowly dripping blood, which can be at once accelerated, if necessary.

Dr. Janet Vaughan described the work of the Northwest London blood supply depot. Concentrated red cells were useful when it was necessary to raise the protein content without affecting the blood volume. Unfiltered, filtered and dried plasma and filtered, dried and citrated serum are available, but only the first two groups of plasma and serum respectively were used in the depot. Unfiltered plasma was obtained by siphoning from sedimented red cells, preferably after five days and not later than two weeks. It rarely formed clots. No serious reactions followed the use of any of the preparations. Plasma, serum and blood seemed equally effective. If severe sepsis is present, fresh blood should be given. The only sure guide to therapeutic value was rise in blood pressure; the pulse was unreliable. An initial dose of 400 cc. of normal serum was satisfactory in most shocked patients. Transfusion is too often delayed for twenty-four hours or until after "cleaning up." It should start before arrival at the operating room and continue all through surgical intervention and into the ward—for twenty-four to forty-eight hours. If protein fluid continues to drain from the patient, transfusion must go on still longer, fresh blood being used for choice. After burns, plasma and serum are better than blood during the first twenty-four hours, when hemoconcentration occurs. Concentrated serum will reduce local edema but is disappointing in nephrotic edema. Dried serum has the advantages that it does not clot, is not readily infected and is small in bulk. Plasma seems to be an ideal culture medium; the infection rate is 7 per cent. Concentrated red cells are valuable in aplastic anemia, anemia associated with sepsis and anemia in the elderly who require immediate operation.

American Gift to the Royal Society

The American Philosophical Society expressed a desire to make a gift of $10,000 to the Royal Society, its British counterpart, and sent an inquiry through our consul general in Philadelphia asking whether the society would have any objection to receive it or to the publicity which would result. The president, Sir Henry Dale, whose recent election has been reported (THE JOURNAL, February 8, p. 529) and who is the eighth of the forty-four presidents who were members of the medical profession, replied that the society would be glad to accept the gift and use it in accordance with the society's charter "for the promotion of natural knowledge." The society would further desire it to receive wide publicity, as additional evidence of the spirit of friendship and the common purpose which animate the men of science in the two countries. The American Philosophical Society was founded in 1743 by Benjamin Franklin, who was elected to the fellowship of the Royal Society in 1756.

In a letter to the *Times* stating these facts, Sir Henry Dale says that the United States is now organizing its tremendous scientific and technical resources alongside those of Britain for the immediate duty of defending the mental and spiritual freedom in which alone science can flourish. It is a token of the desire of the men of science in America to help their colleagues in this country to keep alive the tradition of the pursuit of knowledge for the benefit of all mankind, even when so much has to be given to immediate purposes of war.

The Museum of the Royal College of Surgeons Wrecked

The greatest pathologic and anatomic museum in the world has been wrecked by German bombs and irreparable damage has been done. Fortunately the famous Hunterian collection, purchased by the government for $75,000 after John Hunter's death in 1793, is probably safe under the débris, as it had been removed as a precaution into reinforced sections of the subbasement. Also the collection of portraits and pictures, including Reynold's portrait of Hunter and many of the more valuable books of the library, are safe in the country. The part of the records still at the college are stored in strong rooms that have withstood the blast and flames. But thousands of museum pieces are gone, including skeletons of kangaroos brought by Captain Cook from Australia and the comparative osteology collection of 4,000 specimens, acknowledged to be the finest in the world. Much of the material antedated British Museum specimens, and the greater part of the wonderful work of Sir Richard Owen and William Flower is lost. All John Hunter's furniture, which was in the president's room, is destroyed. The original surgical instruments used by Lister have been recovered, but many others are lost. The oldest Egyptian mummy in the world, that of Ras Nefer, who is said to have died about 2900 B. C., was destroyed, but many mummies of popular interest have been saved. The invaluable army medical war collection, formed after the last great war, containing plaster casts of every type of wound, was also destroyed.

Incendiary bombs first fell on the roof of the college, and just as a watcher was giving the alarm a high explosive struck room 5 of the museum. Only two of the persons in the building were slightly injured. In spite of great damage to the interior, the fabric of the college is more or less intact, but the museum buildings have suffered severely.

Nurses Demand More Money

The recent announcement by the Ministry of Health regarding student nurses and members of the Civil Nursing Reserve has given rise to many complaints, and the Council of the Royal College of Nursing, the most representative body of nurses in the country, which has a membership of more than thirty thousand fully trained nurses and eight thousand student nurses, has drawn up a scale of salaries and conditions. They want standard conditions in hospitals and institutions and a scale of salaries and allowances to operate in conjunction with a scheme of superannuation. Staff nurses after the termination of their training school agreement should have $500 per annum, increasing by increments of $25 annually to $750; ward sisters $750, rising by increments annually of $50 to $1,000; a resident qualified senior sister of a large training school $1,500, rising by increments of $125 to $2,500. The salary of a matron of a hospital of above five hundred beds should be from $3,000 to $5,000; of the assistant matron from $1,500 to $2,500. Because of the special training involved in teaching, holidays should more nearly approach those of the teaching profession. There should be a free period daily, free week ends and at least six weeks' annual leave.

The Admiralty has announced increased rates of pay. The new annual rates are: nursing sisters $475, reserve nursing sisters $525. Higher rates will be allowed for sisters who have approved nursing experience of three years or more, as follows: three years $550, six years $575, nine years $600.

Preparations for a Gas Attack

It is known that the Germans have large quantities of poison gas available and therefore a gas attack on this country on a large scale is regarded as a definite possibility. As part of air raid precautions, anti-gas measures are receiving attention. It is recognized that the first experience of gas might cause alarm. It has been said that a people who can stand the terrors of aerial warfare as at present known to them will not be broken by gas as long as they are prepared. Surprise would be its chief advantage. A new gas is of course not impossible, but experts believe that any development in gas technic is more likely to be in new methods of releasing the poison. The official advice is to be suspicious of any unaccountable smell or effect on the eyes, nose or lungs and to put on the respirator immediately. Any attempt by civilians to distinguish the particular gas is discouraged as likely to involve unnecessary exposure.

At the air raid precautions school there are almost unlimited opportunities to demonstrate the effect of chemical warfare. Dissemination of gases is studied at close quarters, and methods of detection are demonstrated. The decontamination service comprises squads of 5 men . . . [censored]. Reserves must be available. Local authorities are arranging for the interchange of first aid and gas decontamination services. These authorities have prepared as far as possible for the rapid recovery of all public services after a gas attack. But individuals must look after their own safety as they have been instructed in ant' gas measures by government leaflets.

Bombing a Hospital Ship

As previous letters to THE JOURNAL show, the bombing of hospitals and hospital ships is a German routine. The latest example is the following: An S O S was received in the Mediterranean from the hospital ship *Aba,* formerly an Elder Dempster steamer, saying "I am being attacked by enemy planes." Steaming to the scene, British war ships met the hospital ship after three and one-half hours and found that it had escaped damage in spite of eight near misses. Within forty minutes of the warship's arrival eight Junkers 87 returned to the attack, dive bombing both the hospital ship and one of the warships. The attack was difficult to break up because the dazzling light made it hard to fix the target. Although the warship received no direct hit, there were many near misses of it as well as of the hospital ship.

Prof. Lovell Gulland

The death at the age of 79 years of Prof. Lovell Gulland has removed a noted clinician and teacher. Born at Edinburgh and educated at its university, he graduated after a distinguished career as a student with a thesis on the development of lymphocytes which has become a classic. He became physician to the Royal Infirmary, the Chalmers Memorial Hospital and the Royal Victoria Hospital for Tuberculosis. In 1915 he was appointed professor of medicine in Edinburgh University. His particular interest was diseases of the blood, on which he wrote many papers and, in collaboration with Alexander Goodall, a monograph, "The Blood and Its Diseases," and, in collaboration with Prof. Stanley Davidson, "Pernicious Anemia." He was a pioneer in hematology, on which he was known as an authority all over the world.

Increase of the Population of India

While war conditions have prevented census operations in Britain, the decennial enumeration of the population of India took place according to plan. The preliminary figures indicate that 400,000,000 people were enumerated. The increase for the ten years was as high as 18 per cent against 10 per cent in the previous decennium, 1921-1931. On this occasion there was the fullest public cooperation, whereas in 1931 Mr. Gandhi's civil disobedience campaign was in progress. The large rate of growth, foreseen by the public health commissioner, is attributable mainly to the decade having been on the whole healthful and prosperous with satisfactory monsoons, and to the effect of ameliorative measures and irrigational extensions.

SWITZERLAND

(From Our Regular Correspondent)

April 15, 1941.

Incidence of Rabies in Switzerland

Until 1900 persons bitten by mad dogs had to be sent to the Pasteur Institute in Paris for treatment. Between 1891 and 1895 there were 58 such cases. In 1900 an antirabies center was organized in the Institute for the Study of Infectious Diseases in Berne, and hospitalization facilities were provided in the university clinic. This center is under the direction of the head of the university department of hygiene and bacteriology. Its functions are the vaccination of bitten persons and animals, prophylactic inoculation and diagnosis, and scientific research. In a report on the activities of this center during the years 1900-1939 it was pointed out that all cases of rabies were sporadic ones. Occasional epidemics of small scope occurred in border cantons and were due to importation. Swiss law does not make rabies a notifiable disease, nor is vaccination against rabies compulsory. The incidence of rabies has greatly decreased in Switzerland as in other countries as the result of the efficacy of vaccination and the prophylactic and veterinary measures now generally practiced. The mortality rate in Switzerland, which was never high, shows a decline from ten deaths in the decades between 1881-1890 to six in 1891-1900, one in 1901-1910, three in 1911-1920, two in 1921-1930 and no fatality since 1930. Patients are divided into four categories (A, B, C, D) in accordance with the divisions prepared by the Health Organization of the League of Nations. Classification depends on whether the offending animal was recognized to be rabid either experimentally or clinically or was or was not suspected of rabies.

In the forty years during which the institute has functioned, 394 persons have been treated. These were distributed over

the four categories as follows: category A 194 cases (49.2 per cent), B 16 cases (4.1 per cent), C 64 cases (16.2 per cent) and D 120 cases (30.5 per cent). More males were bitten than females; 25 per cent of all patients were children. Arm bites were most frequent; leg bites followed. In 62 per cent of the cases the wound was inflicted on the unprotected skin. However, the injury was a deep one in only 16 per cent of the cases. Eighty-four per cent were treated within the first two weeks after trauma, most of them within the first week. Most treatments were given in Berne. In other cases, vaccines were freshly prepared daily so that the maximum time interval between preparation of the vaccine and its administration was about six hours. At least 210 of the 394 patients were known to be bitten by a rabid dog or licked with its tongue. There was only one death (0.25 per cent) from rabies after treatment. Of the 394 cases, 355 were dog bites, 35 cat bites, 2 morsus humanus, 1 fox bite and 1 rabbit bite. Two hundred and twenty-three of the biting animals were killed at once. Their killing hindered a thorough analysis of the case.

The vaccine used is a modification of that used by Pasteur and Calmette. Eighteen daily injections are usually given; in serious cases, twenty-one.

Sixty Year Old Quadruplets

A familial study was recently made by Dr. Otto Schlaginhaufen of quadruplets now 60 years old, still in good health and in part occupationally active. Their name is Gehri. They were born Sept. 26, 1880 in Oberlindach, a small town in the canton of Berne. Their mother was 39 years old at the time and subsequently bore three more children. The quadruplets weighed 6,720 Gm. at birth. Oscar, the first born, weighed 2 Kg. and was 43 cm. long. Bertha weighed 1,250 Gm. and was 39 cm. long; Rosa weighed 1,750 Gm. and was 40 cm. long. Arthur, who weighed 1,500 Gm. and was 40 cm. long, had to be animated artificially. The birth process covered five and one-half hours. In view of the placental condition reported by the obstetrician and the dissimilarity, which increased with the years, it is assumed that four different ova were involved. Oscar attained a size of 172 cm.; the others varied from 153 to 158 cm. The children borne subsequently by the same mother were considerably larger. The cranial and facial formation of the quadruplets is noticeably narrower than that of their brothers and sisters born later and is ascribed to an intrauterine origin. Oscar and Arthur gave a vertex presentation, Rosa and Bertha a foot presentation. Schlaginhaufen, in conducting this familial study, found that plural births had occurred in the ascending lines of both the father and the mother.

Sulfonamide Drugs Now Under Prescriptive Control

The federal Swiss government has recommended to the cantonal boards of health that they make medical prescription for all drugs containing sulfonamide ingredients obligatory. This action was taken because of the ill effects reported for random lay use. According to Swiss law, the various cantons have their own jurisdiction in matters of this kind. However, they generally adopt the recommendations of the federal government.

Brief Mention

The award made annually by the faculty of medicine of the University of Berne for research on encephalitis will be made retroactively to Dr. B. Disertori of Trient, Italy, for 1938 and to Prof. G. Panegrossi of Rome for 1939. Panegrossi has worked extensively on the so-called Bulgarian cure, an extract prepared from the roots of Bulgarian belladonna.

Dr. H. Henneberg was chosen to succeed Professor de Seigneux as professor of gynecology and director of the dispensary for obstetrics and gynecology at the University of Geneva.

Prof. Gustav Roussy, rector of the University of Paris and a native Swiss, was retired from office, apparently for racial considerations. Roussy was professor of pathologic anatomy and was known for his cancer research. He was the founder of a cancer research center in Paris.

Deaths

Prof. Edouard Claparède died in Geneva, aged 67 years. He was the founder of the Jean Jacques Rousseau Institute. His chief interest lay in child psychology. Nearly all his contributions, dealing with subjects such as sleep, hysteria and hypnosis, appeared in the *Archives de psychologie*, which he edited for some forty years at great expense to himself. Among his books may be mentioned "L'éducation fonctionnelle" and his "Psychologie de l'enfant et pédagogie expérimentale" which appeared in seven editions and was translated into ten languages. Claparède was an inspiring teacher whose scientific modesty was unspoiled by the many honors bestowed on him.

Prof. Max Nadoleczny died in Zurich at the age of 68 years. Though a native of Zurich, he spent most of his academic life in Munich, where he was on the staff of the faculty of medicine. He became well known for his research and therapies in speech disorders. He was retired several years ago because of changed political conditions in Germany and returned to his native city.

Prof. Hans Wildbolz, professor of urologic-surgical diagnosis in the faculty of medicine and head physician of a hospital division, died at the age of 68 in Berne toward the end of last year. He had been Kocher's assistant, early began to specialize in urologic surgery and was regarded as one of the leading urologists. His textbook and monographs were widely known. In his death Switzerland lost one of its distinguished physicians and a man held in highest personal esteem.

Marriages

VINCENT FRANCIS BIONDO, A. Surg. Lieut. (j. g.), United States Navy, New York, to Miss Katherine Maria Ryan of Berkeley, Calif., in Oakland, Calif., May 17.

ROSS C. SPEIR JR., Lieutenant (j. g.) Medical Corps, United States Navy, San Diego, Calif., to Miss Miriam Olds of Lansing, Mich., April 12.

STERLING P. HOFFMANN JR., Fort Wayne, Ind., to Miss Helen Inez Ferguson of Jeffersonville in Indianapolis, April 5.

AMOS R. GARRISON, Byington, Tenn., to Mrs. Lonnie B. Glenn of Tampa, Fla., in Chattanooga, Dec. 26, 1940.

DUNCAN GRAHAM CALDER JR., Charlotte, N. C., to Miss Mary Frances Barnhardt, Concord, April 19.

CURTIS B. NESSA, St. Cloud, Minn., to Miss Gertrude Woldrick in Medicine Lake, April 19.

KENNETH C. NICKEL, Detroit, to Miss Margaret Buechler of South Euclid, Ohio, February 22.

JOHN WATKINS WILLIAMS JR. to DR. ALYCE MARY ARRETTEIG, both of Pineville, La., April 18.

BRUCE RANKIN MCCAMPBELL, Fountain City, Tenn., to Miss Faye Williams of Memphis recently.

MARSHALL LOUIS MICHEL JR., Biloxi, Miss., to Miss Nancy Shaw of New Orleans in April.

ALBERT LOUIS EVANS, Sandersville, Ga., to Miss Lena Lovett of Wrightsville, Dec. 27, 1940.

JAMES REGINALD MYERS to Miss Barbara Jean Blackburn, both of Everett, Pa., June 4.

GERRIT JOHN BUDDINGH to Miss Alice Mitchell, both of Nashville, Tenn., May 28.

ARTHUR T. BLACHLY to Mrs. Gertrude A. Brown, both of Portland, Ore., June 7.

AUBREY WAYNE ELSTEN, Lapel, Ind., to Miss Anna Harting of Elwood, April 26.

MICHAEL BOLEY to Mrs. Marcella Shannon, both of Chicago, June 4.

Deaths

Walter Gustav Stern ✦ Cleveland; Western Reserve University Medical Department, Cleveland, 1898; chairman of the Section on Orthopedic Surgery of the American Medical Association, 1928-1929; vice president of the American Orthopaedic Association in 1918; past president of the Clinical Orthopaedic Society; member of the American Academy of Orthopaedic Surgeons; charter member of the International Society of Orthopedic Surgery; fellow of the American College of Surgeons; lecturer of orthopedic surgery at the Cleveland College of Physicians and Surgeons, medical department of Ohio Wesleyan University, from 1906 to 1911; orthopedic surgeon, Lutheran Hospital, Holy Cross Home for Crippled Children and the Jewish Orphan Asylum, Cleveland, and the Gates Hospital for Crippled Children, Elyria; consulting orthopedic surgeon, St. John's, Mount Sinai and Glenville hospitals, Cleveland, and Bedford Municipal Hospital, Bedford; aged 66; died, June 8, of coronary thrombosis.

James Hugh Earley, Washington, D. C.; University of Michigan Medical School, Ann Arbor, 1922; member of the Medical Society of the District of Columbia; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; associate professor of clinical otorhinolaryngology, Georgetown University School of Medicine; otolaryngologist, Episcopal Eye, Ear and Throat Hospital, Georgetown University Hospital, Providence Hospital, and the Gallinger Municipal Hospital, Washington, and the Tuberculosis Sanatorium, Glenn Dale, Md.; aged 44; died, May 9, of heart disease.

Frederick Augustus Faust ✦ Colorado Springs, Colo.; New York Homeopathic Medical College, New York, 1886; on the staffs of the Glockner Hospital, Beth El Hospital and St. Francis Hospital; aged 76; died, May 8, in St. Joseph's Hospital, Denver, of coronary sclerosis.

Alphonse Lessard, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1895; professor of sanitary legislation at his alma mater; director of the Provincial Bureau of Health; past president of the Canadian Public Health Association; aged 69; died, April 27.

Rodes Estill Yager, Big Timber, Mont.; Johns Hopkins University School of Medicine, Baltimore, 1918; served during the World War; aged 48; died, May 6, in a hospital at Billings of pulmonary embolism and coronary disease.

Harold Kalling, Black River Falls, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1904; served during the World War; aged 71; died, March 9, in the Veterans Administration Facility, Hines, of pernicious anemia.

Edgar Allen Whitmer, Louisa, Ky.; Starling Medical College, Columbus, 1900; veteran of the Spanish-American War; aged 65; died, May 10, in the White Cross Hospital, Columbus, Ohio, of coronary occlusion.

J. Frederick Hill, Waterville, Maine; Medical School of Maine, Portland, 1885; member of the Maine Medical Association; on the staff of the Thayer Hospital; aged 86; died, May 1, of uremia and arteriosclerosis.

Vincent Aloysius Eagen ✦ Far Rockaway, N. Y.; Long Island College Hospital, Brooklyn, 1922; on the staff of St. Joseph Hospital; aged 42; died, May 14, in the Presbyterian Hospital, New York, of brain tumor.

Howard Miles Smiley, Lewistown, Pa.; Jefferson Medical College of Philadelphia, 1897; aged 72; died, May 8, in the Geisinger Memorial Hospital, Danville, of arteriosclerosis, hypertension and uremia.

Louis Edgar Deary, Bayonne, N. J.; Bellevue Hospital Medical College, New York, 1894; member of the Medical Society of New Jersey; on the staff of the Bayonne Hospital; aged 69; died, May 4.

George Reed Carroll, Lillie, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; aged 69; died, May 8, in a hospital at New Orleans of pulmonary tuberculosis and empyema.

Elias W. Ragsdale, Tignall, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1890; member of the Medical Association of Georgia; aged 70; died, April 26, of coronary occlusion.

Robert Rufus Robinson, Los Angeles; Meharry Medical College, Nashville, Tenn., 1918; aged 54; died, April 11, of bronchopneumonia following cerebral hemorrhage and hypertension.

Philip Guzzetta, Milwaukee; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1896; aged 71; died, May 4, of adenocarcinoma of the tongue and cervical glands.

Brown Word, Leesville, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1908; bank president; formerly sheriff and parish coroner; aged 58; died, April 8.

Arthur R. Kresler ✦ Rensselaer, Ind.; Medical College of Indiana, Indianapolis, 1902; past president of the Jasper-Newton Counties Medical Society; aged 63; died, May 5.

George Reuben Smith, Woonsocket, R. I.; University of Vermont College of Medicine, Burlington, 1882; member of the Rhode Island Medical Society; aged 84; died, May 12.

Lee E. Parr, Beeville, Texas; Eclectic Medical Institute, Cincinnati, 1884; University of Tennessee Medical Department, Nashville, 1889; aged 83; died, April 22, in San Antonio.

Pierron Willets Bergen, Long Island City, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1912; aged 50; died, May 1, of heart disease.

Bernard Sour ✦ New York; College of Physicians and Surgeons, medical department of Columbia College, New York, 1893; aged 71; died, May 7, of coronary thrombosis.

Colvin Ketchum, Nokomis, Sask., Canada; University of Alberta Faculty of Medicine, Edmonton, Alta., 1938; served during the World War; aged 52; died, March 25.

Otis M. Turner, Sumner, Ill.; Eclectic Medical Institute, Cincinnati, 1898; at one time mayor; aged 72; died, April 28, in Anna (Ill.) State Hospital of arteriosclerosis.

James Steffens, Chicago; American College of Medicine and Surgery, Chicago, 1905; aged 65; died, May 11, in the Veterans Administration Facility, Hines, Ill.

Wilson A. Russell, Hardin, Mont.; Chicago Homeopathic Medical College, 1897; past president of the Big Horn County Medical Society; aged 68; died, April 29.

John Edwin Trierweiler ✦ Yankton, S. D.; John A. Creighton Medical College, Omaha, 1912; served during the World War; aged 52; died, April 17.

Laura Jennings Cloud, Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1885; aged 85; died, May 11, of coronary occlusion and arteriosclerosis.

Jesse M. Willis, Williston, Fla.; Louisville (Ky.) Medical College, 1892; mayor; aged 76; died, April 23, in a hospital at Ocala of cerebral hemorrhage.

David Heilman Schall, Canton, Ohio; National Normal University College of Medicine, Lebanon, 1896; aged 77; died, May 1, in the Mercy Hospital.

Charles P. Roberts, Galveston, Texas; University of Texas School of Medicine, Galveston, 1905; aged 60; died, April 20, in a hospital at San Antonio.

Claudius Cameron Joyner, Farmville, N. C.; Jefferson Medical College of Philadelphia, 1899; aged 68; died, May 2, of coronary thrombosis.

William Forrester Satchell, Long Beach, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1901; aged 64; died, April 24.

Robert H. Kilpatrick Kirk, St. Louis; Missouri Medical College, St. Louis, 1887; aged 78; died in April of nephritis and myocarditis.

Carter McVine Tobey, De Pere, Wis.; New York Homeopathic Medical College, New York, 1877; aged 91; died, April 25.

Gertrude Greenstein, New York; New York Medical College and Hospital for Women, New York, 1914; aged 54; died, May 14.

Virginia Chenoweth Rigg, Medford, Ore.; Keokuk (Iowa) Medical College, 1892; aged 87; died, April 26, of bronchopneumonia.

Charles Edgar Wilson, Oshawa, Ont., Canada; University of Toronto Faculty of Medicine, 1915; aged 51; died, April 20.

Wilborn Roper Winter, Lebanon, Tenn.; University of Nashville (Tenn.) Medical Department, 1890; aged 73; died, April 11.

John Malcolm Chapman, Greenville, S. C.; University of Nashville (Tenn.) Medical Department, 1909; aged 53; died, April 27.

Walter Jacob Snyder, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia; 1903; aged 61; died, April 26.

Bureau of Investigation

CHARLES AUGUSTUS de VERE, SELF-STYLED ANATOMIST

During the past few years inquiries have been received, both by the Bureau of Investigation of the American Medical Association and by the Board of Medical Examiners of the State of California, in regard to one C. Augustus de Vere, who gives review courses in the anatomy of the head and neck to physicians. It is interesting to note a report of an investigation of de Vere by J. W. Williams, an agent of the California Board, which is abstracted herewith:

On March 17, 1941, C. Augustus de Vere was arrested in Colfax, Calif., for violation of section 2141 of the Business and Professions Code (section 2141 deals with the use of the prefix "Dr." and the suffix "M.D." on signs and advertising by individuals not licensed in the state of California as Doctors of Medicine). Actually, his advertising material carried the heading "C. Augustus de Vere, M.D., New York City, Director of Anatomy, Division of Educational Courses," and added, in a rubber stamp, "609 Professional Building, Los Angeles, California."

The January issue of *California and Western Medicine* carried an article regarding his activities and claims and noting that the American Medical Association and Columbia University had no record of him. Nevertheless, at the time of his arrest he claimed to hold a certificate from the Physicians and Surgeons College of New York, stating that he had graduated therefrom in 1918 but had never obtained a license to practice medicine in any state. He did not appear to be aware of the fact that the College of Physicians and Surgeons was the medical division of Columbia University. He claimed he had left New York in 1934 to attend a medical convention in Cleveland, and from there had proceeded on a tour of the Southern and Western states, giving lectures on anatomy, which had taken him through Georgia, Florida, Texas, Arizona and finally to California, where he had conducted these activities for the past three years.

A search was made of de Vere's automobile, and it was found to contain wet specimens, including some twenty-seven human heads, hands, arms, hearts, brains and prepared skulls, among other things. On the evening of his arrest he claimed to have obtained all of the specimens in Cleveland but refused to divulge the source from which he obtained them. He also mentioned during his conversation the "mad killer of Kingsbury Run" of Cleveland, who was said to have been responsible for twenty-seven headless bodies having been found in that city during the years 1935 and 1936, and said that he had been told by friends that, should he ever be picked up for questioning and all the specimens found, he might be accused of being responsible for those murders.

The California authorities wrote to the chief of police of Cleveland, requesting any information on the subject. The Cleveland police had no record of de Vere but forwarded photostatic copies of handwriting and an unsigned typewritten note mailed on Dec. 22, 1939 from the Arcade Annex Post Office in Los Angeles, in which the writer advised the chief that he need not worry further about additional murders in the city of Cleveland, as he (the writer) was now carrying on his operations in "Sunny California." California authorities made careful investigation of the handwriting and the typewritten note, but although the handwriting, phraseology and punctuation of the note regarding the murders were quite similar to those of letters written by de Vere, the experts examining them decided that the note was not that of the defendant.

In de Vere's possession at the time of his arrest was an address, "Dr. C. Augustus de Vere, 317 Fremont Avenue, Apartment 8, Jersey City, New Jersey." This was found to be the address of the subject's mother, and it was determined that his true name was Charles Augustus Devermann. His mother had never known of her son's having been a doctor, and, so far as she knew, he had only completed a grammar school education and attended night school in New York for a short time.

The subject was also using letterheads with the address "219 East 44th Street, New York City," which was found to be a twelve floor loft building owned and occupied by the New York *Evening Sun*. The New York authorities were asked for information on Charles Augustus de Vere and sent complete records on an individual known as Charles de Vere, New York Police Department, No. 88288, with numerous aliases and sixteen arrests and convictions throughout New York, Illinois, Ohio, Missouri, Iowa, Florida and Pennsylvania, for crimes ranging from grand larceny to confidence man. "Strangely enough," states the report of the California investigator, "this individual proved to be different from the one investigated in California, although the New York criminal's name was the same as the alias taken by the subject, and his general description was similar."

A third statement taken from the subject on April 2, 1941 contained the admission that he was a fake, with no bona fide medical training, that he was using an alias in place of his true name, and that he had obtained what knowledge he had of anatomy through his connection with a manufacturer and distributor of anatomic slides. He also divulged that he had been in conflict with the law in the Dominion of Canada and had considerable trouble getting out of these difficulties.

A careful examination was made of the wet specimens found in the defendant's car, and two of the hands were identified as belonging to Wallace Johnstone, alias John Anderson, an ex-convict who served time in the Washington state penitentiary in 1917 for grand larcency and who had committed suicide in Palo Alto, Calif., in 1935. The body had been turned over to Stanford Medical School for scientific purposes, which school had turned it over to the San Francisco College of Physicians and Surgeons School of Dentistry, and it was from the dean of that college that de Vere had obtained the hands. According to the California agent, other parts of the human body found in de Vere's possession were subsequently traced to the Department of Anatomy of the University of Cincinnati, where de Vere had obtained them in 1934.

De Vere pleaded guilty to charges of holding himself out as a physician and surgeon in the state of California, whereupon the court fined him $100. The charge of possessing hypodermic needles was dismissed by the court at that time, and the defendant promised to leave California immediately and not again attempt to carry out his activities in that state. Finally, de Vere was said to have proceeded eastward immediately after being released from the Placer County jail, where he was in custody pending his trial from March 17 until April 11, 1941. The special agent's report concludes: "Although we apparently have succeeded in driving this impostor from the state of California, he is undoubtedly continuing his activities in other states, as he so stated to the district attorney in Auburn upon his release."

Success and Failure of Suicides.—"More than 18,000 people a year in this country put an end to their own lives, and probably an additional 100,000 make unsuccessful attempts to kill themselves" says the May issue of the Statistical Bulletin of the Metropolitan Life Insurance Company. More women than men attempt suicide, but three times as many men as women are successful. More than half of the women are under 30 years of age, but only a quarter of the men. The younger the person, the less apt he is to succeed. Only one out of every six men under 25 who attempt self destruction is successful, whereas at ages 50 and over the ratio is two out of three. Three fourths of the women use poison, which is designated as the least efficient method. Men are more inclined to select violent methods, such as drowning, shooting, hanging or jumping from high places. In many cases it is difficult to determine the motive of suicide, but from what information is available it would appear that ill health, domestic troubles, financial difficulties and despondency over life in general are the most frequent reasons. The efforts that have been made by social and medical agencies to prevent suicide seem to have produced little effect, but it is suggested that "a well organized and concerted program can do much to prevent this needless loss of life."

Correspondence

UTILITY OF ANIMAL BLOOD IN PREPARATION OF PLASMA FOR TRANSFUSION

To the Editor:—The possible utility of solutions of albumin prepared from the blood of domestic animals as a substitute for blood has been mentioned recently by Cohn (*Chem. Rev.* **28**:395, 1941). Cohn has not indicated any results of biologic trials and states that study will be needed to see whether such albumins will, in fact, remain in the blood stream and attract or hold water there by virtue of their colloid osmotic pressure. In view of the potential wartime importance of such preparations, we wish to offer some pertinent information on this and other points from studies extending over the past four years in the Laboratory of Physiological Hygiene of the University of Minnesota.

We have prepared serum, plasma and plasma albumins and globulins under sterile conditions by precipitation methods with ammonium sulfate, phosphates and alcohols and by extraction methods with alcohols. The donor animals have included the cow, horse, sheep and goat as well as other animals of only theoretical interest, such as the dog, rabbit, guinea pig and fox. The molecular weights of the albumins have all been between 68,000 and 72,000.

These heterologous proteins have been studied by intradermal and intravenous injection methods in both man and animals. The influence of products of bacterial metabolism and of chemical preservatives on the incidence of reactions also has been studied. The persistence of the foreign protein in the blood has been followed by specific precipitin methods. The following statements may be made:

1. We have been unable to find any natural protein fraction in animal plasmas which will not cause reactions in some persons.

2. The incidence of natural sensitivity to these animal blood proteins varies over a wide range, depending on the donor species. In all cases the albumin fractions produce fewer and less severe reactions than the globulin fractions or the native plasma or serum.

3. Persons who are sensitive to the albumins of one animal species are not necessarily sensitive to those of another species, so that if there is a choice of several animal plasma albumins almost all persons will be able to receive one of these.

4. These heterologous albumins do not escape from the blood stream in significant amount and apparently behave, physically, precisely like the recipient's own plasma albumin.

5. Animals in shock from hemorrhage can be readily revived by the intravenous injection of an amount of foreign plasma albumin equal to that lost in the hemorrhage. If the albumin is administered in concentrated solution, it draws water from the tissues and so restores the blood volume.

6. Such foreign albumins persist in the blood stream in large amounts for some days and may be detected there for as long as three weeks.

7. Sensitization of both man and animals to these foreign proteins occurs readily with both albumins and globulins.

8. We have found no differences in sensitivity to albumins from different individual donor animals of the same species.

9. The metabolism of bacteria, including common air-borne, cryophilic forms, may greatly increase the incidence of reactions to such protein solutions, even though gross contamination is avoided and the final solution injected is sterile.

10. Fifteen minute cutaneous tests provide a valuable guide to the selection of a foreign albumin solution for administration to a given individual. Most of the common serum preservatives interfere with such tests by producing a high incidence of false positive reactions.

Ancel Keys, Ph.D.
Henry L. Taylor, B.A.
George M. Savage, Ph.D.
Minneapolis.

BLOOD PRESSURE

To the Editor:—There has been brought to my attention the review in your issue of April 26 of the "Blood Pressure Study (1939)," published by the Joint Committee of the Association of Life Insurance Medical Directors and the Actuarial Society of America. One of the most important investigations ever made of this subject has been dismissed in a review of thirty-five lines, one half of which is devoted to a minor point.

For the first time an analysis has been published of a large experience in which both systolic and diastolic readings have been taken into account. The results show that neither the diastolic nor the systolic is the more important factor. This may be learned from the study, together with other indications such as that a low systolic with a low diastolic blood pressure shows a favorable mortality. In the following table the percentages refer to departures from the normal mortality of 100 per cent; accordingly, 95 per cent would mean a mortality 5 per cent better than the normal and 160 per cent would be 60 per cent worse than it. Where the percentages are not given, there was not sufficient material to justify publication.

	Diastolic 84-88				Diastolic 89-93				Diastolic 94-98			
	Ages				Ages				Ages			
Systolic	10-29	30-39	40-49	50 Up	10-29	30-39	40-49	50 Up	10-29	30-39	40-49	50 Up
128-132	95	105	93	94	96	120	101	89	160	90	91	96
133-137	95	115	104	96	135	141	116	94	...	152	129	95
138-142	107	118	131	104	...	137	139	116	...	182	166	130
143-147	...	160	138	120	...	114	163	123	...	...	199	146
148-157	...	...	203	153	...	155	211	148	...	249	201	180
158-167	...	...	...	183	...	...	221	191	...	...	390	212

The foregoing indicates that a comparatively small increase in the systolic over the average pressure on standard lives results in a material increase in the mortality. Where the systolic and diastolic are both high, say 148-157 and 94-98 respectively, at ages 40-49, the mortality is twice the normal.

A table in the report which would interest physicians shows the deaths from cardiovascular renal diseases compared to the deaths from all causes:

Deaths from Cardiovascular Renal Diseases: Proportion to All Deaths

Systolic Reading	Diastolic Reading		
	54-83	84-93	94-116
108-132	32 per cent	33 per cent	39 per cent
133-142	40 per cent	45 per cent	48 per cent
143-177	49 per cent	54 per cent	60 per cent

It may be difficult for a busy physician to find time to study the foregoing tables, but they give information which is not available elsewhere.

Arthur Hunter, New York.
Chairman, Joint Committee on Mortality Association of Life Insurance Medical Directors and Actuarial Society of America.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, June 28, page 2885.

BOARDS OF MEDICAL EXAMINERS

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, July 14. *Written.* Los Angeles, July 14-17. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

CONNECTICUT:* *Medical. Written.* Hartford, July 8-9. *Endorsement.* Hartford, July 22. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, July 15-16. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: July 8-10. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

HAWAII: Honolulu, July 14-17. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, Oct. 7. Dir., Bureau of Occupational License, Mr. Walter Curtis, 355 State Capitol Bldg., Boise.

MASSACHUSETTS: Boston, July 8-11. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MONTANA: Helena, Oct. 6-8. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEVADA: *Reciprocity with oral examination,* Aug. 4. Sec., Dr. Fred M. Anderson, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

OREGON:* Portland, July 24-26. Final date for filing application is July 9. Exec. Sec., Miss Lorienne M. Conlee, 608 Failing Bldg., Portland.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 8-12. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. Marguerite G. Steiner, 358 Education Bldg., Harrisburg.

RHODE ISLAND:* July 10. Acting Chief, Division of Examiners, Mr. E. Clyde Thomas, 366 State Office Bldg., Providence.

SOUTH DAKOTA:* Pierre, July 15-16. Dir., Medical Licensure, Dr. J. F. D. Cook, State Board of Health, Pierre.

WASHINGTON:* Seattle, July 21-23. Sec., Department of Licenses, Mr. Nelson N. Vaughan, Olympia.

WEST VIRGINIA: Wheeling, July 7-9. Sec., Public Health Council, Dr. C. F. McClintic, State Capitol, Charleston.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA: Washington, Oct. 20-21. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

IOWA: Des Moines, July 8. Dir., Division of Licensure and Registration, State Department of Health, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

NEBRASKA: Lincoln, Oct. 7-8. Dir., Bureau of Examining Boards, Mrs. Jeannette Crawford, 1009 State Capitol Bldg., Lincoln.

OREGON: Corvallis, July 12. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Aug. 20. Acting Chief, Division of Examiners, Mr. E. Clyde Thomas, 366 State Office Bldg., Providence.

WASHINGTON: Seattle, July 17-18. Sec., Department of Licenses, Mr. Nelson N. Vaughan, Olympia.

Alabama Reciprocity Report

The Alabama State Board of Medical Examiners reports 15 physicians licensed to practice medicine by reciprocity and 3 physicians so licensed by endorsement of credentials of the National Board of Medical Examiners from January 1 through April 18. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine		(1937)	Tennessee
University of Georgia Medical Department		(1924), (1932)	Georgia
Rush Medical College		(1937)	Illinois
University of Illinois College of Medicine		(1935) (1939)	California, Texas
Johns Hopkins University School of Medicine		(1924)	Maryland
University and Bellevue Hospital Medical College		(1924)	New York
University of Pennsylvania School of Medicine		(1931)	Penna.
Meharry Medical College		(1938)	Tennessee
Memphis Hospital Medical College		(1906)	Tennessee
University of Tennessee College of Medicine		(1938) (1939)	Mississippi, Tennessee
Vanderbilt University School of Medicine		(1924)	Tennessee
University of Virginia Department of Medicine		(1935)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.
George Washington University School of Medicine		(1938)
University of Minnesota Medical School		(1931)
Duke University School of Medicine		(1938)

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Societies: Expulsion Invalid if Voted at Meeting Not Attended by Quorum.—Charges were preferred with the committee on grievances of the Kern County (Calif.) Medical Society that Smith, a member of the society, was "guilty of disposing of his services under conditions that make it impossible to render adequate service to his patients and . . . [was] guilty of disposing of his services under conditions which interfere with reasonable competition among physicians in the community where he lives and practices." A copy of the charges was timely served on the physician and he was notified of the time and place of a hearing on those charges, which was set by the committee for Oct. 3, 1935. He did not appear at the hearing and the committee proceeded in the matter. As required by the by-laws of the society, the committee submitted a written report of the hearing to the board of directors of the society, which in turn notified the physician that it proposed to act on the committee's report November 12. He likewise failed to appear at that hearing, and, after considering the report of the committee on grievances, the board of directors sustained the charges and voted to expel him from the society. Apparently by the by-laws of the society, before the action of the board can become effective it must be sustained by the society. Accordingly, at a meeting of the society held November 21 the matter was considered, twenty members voting to sustain the board and to expel Smith and two members voting adversely to the action proposed by the board. The physician appealed successively to the council of the California Medical Association and to the Judicial Council of the American Medical Association but both of those bodies affirmed the order of expulsion. Subsequently he applied unsuccessfully to the superior court, Kern County, for a writ of mandamus to compel his reinstatement as a member in the society. He then appealed to the district court of appeal, fourth district, California.

The physician questioned the legality of his purported expulsion because of the absence of a quorum at the meeting of the society on November 21, which had voted twenty to two to expel him. He maintained, and correctly in the view of the district court of appeal, that three purported members who voted at that meeting were not qualified members because "they had not signed the constitution and by-laws, which act was made a prerequisite to membership" in the society. It is clear, said the district court, that there were only nineteen members of the defendant society present at the time of the vote of expulsion. The records of the society indicate that forty-two members were signers of the constitution and by-laws. Three of these had been suspended and the by-laws prohibited the petitioner from voting. While the constitution and by-laws of the society do not specify the number of members necessary to constitute a quorum, the by-laws adopt Robert's Rules of Order, by which a majority of the members of an organization constitutes a quorum. As there were only nineteen of the members of the society in attendance at the meeting when the motion to expel was put to a vote, there was not a quorum present even though one regards the membership of the society at that time as only thirty-eight. Since the presence of a quorum is necessary for the transaction of business, it follows that no motion to sustain the action of the board of directors in expelling the physician was carried.

In California, continued the court, the courts will not interfere with the internal economy, rules of membership or rules of procedure or discipline of members of a strictly fraternal or social unincorporated voluntary organization in which the members have no severable or divisible proprietary interest in any portion of its property and where the members' interest in the property of the organization is only an incident of membership since the courts have no standards by which to determine the propriety of such rules. Only when there is an allegation that

there has been an unreasonable and arbitrary invasion of private rights will the courts interfere, and even then the inquiry generally will be limited to a determination as to whether or not the society in adopting the action in question has conformed to its own rules of procedure. The scope of such a court inquiry will be limited by a recognition and application of the following rules of law: 1. The constitution and by-laws of the society constitute a contract between the association and its members. 2. A person may, by contract, waive his legal rights. 3. When a member has been given a fair trial before the tribunals of the society according to the procedure established by it, the courts will not interfere. 4. Proceedings in such societies are not bound about by technicalities and strict rules of procedure and interpretation are not legally required. 5. Membership in such an association is not a right that can be demanded but is a privilege that may be granted or withheld on the terms and conditions imposed by the society. 6. An illegal motive will not render a lawful act unlawful.

The physician further contended that the members of the committee on grievances and of the board of directors were so prejudiced against him as to disqualify them from conducting the proceedings against him. As no bodies, answered the district court, other than those referred to were available under the society's organizational law with power to conduct hearings on disciplinary matters, it thought regardless of whether or not individual members were prejudiced that they had power to determine the matter, citing *Nider* v. *Homan*, 32 Cal. App. (2d) 11, 89 P. (2d) 136, which in turn quotes from 39 A. L. R. 1476 as follows:

> By the great weight of authority, a judge or an officer exercising judicial functions may act in a proceeding wherein he is disqualified by interest, relationship, or the like, if his jurisdiction is exclusive and there is no legal provision for calling in a substitute, so that his refusal to act would prevent absolutely a determination of the proceeding.

Since it appeared from the record, in the opinion of the district court, that because of a lack of a quorum present at the meeting of the Kern County Medical Society at which the vote of expulsion was taken the rules of the society were not followed in the proceedings which resulted in the physician's expulsion, the court concluded that he was never legally expelled and, in effect, ordered his reinstatement to membership in the Kern County Medical Society.—*Smith v. Kern County Medical Association et al., 112 P. (2d) 268 (Calif., 1941).*

Malpractice: Alleged Negligent Application of Heat in Treatment of Phlebitis.—Soon after being confined to bed for about fifteen days following an appendectomy, the plaintiff suffered severe pain in the lower part of his left leg. The defendant physician, who was then called in on the case, made a diagnosis of phlebitis and advised the application of heat to the affected area. In accordance with his instructions a cradle made from barrel staves sawed in half to which two 40 and one 50 watt electric light bulbs were attached was placed over the injured leg and covered with a blanket to retain the heat of the lighted bulbs, which were 6 or 7 inches distant from the leg. An ice pack was placed on the groin, the foot was elevated and the patient was kept quiet. From time to time hypodermic injections were given to relieve pain. Before the cradle was constructed, the physician left the patient and did not see him again until the following day. Meanwhile, the heat was continuously applied. On the physician's return, he discovered a water blister of considerable size which had formed on the leg between the ankle and the thigh. Because of his discomfort, the patient asked that the cradle be removed. The physician refused to permit this, informing the patient that the cradle was necessary for proper treatment of the condition and that the water could not be drained from the blister. As the physician directed, the lights as originally installed remained burning in the cradle continuously for about three days, when three bulbs of 15 watts each were substituted. The cradle was then used for an additional eighteen days and removed. After the removal of the cradle the blister burst, and subsequently ulcers formed in the affected area of the leg. Later the patient sued the physician for malpractice, claiming that he had been negligent in "the manner of applying the treatment."

At the trial it appeared from the testimony of medical experts that phlebitis is a condition not infrequently resulting from operations and that in spite of the care taken by the operating physician it is unpredictable and unpreventable. As the court viewed the evidence, phlebitis occurs when a blood vessel has become obstructed or "occluded by virtue of a clot known as a thrombus," and the condition is indicated by swelling in affected areas, pain and oftimes discoloration. Phlebitis sometimes causes blisters on the surface of the skin without the application of heat, sores and ulcers developing quite commonly. In the opinion of the medical witnesses, the disability of the patient at the time of the trial was traceable mainly to the thrombus, the scarification that was present was a "cosmetic factor more than anything else" and, although not usually the case, phlebitis would cause not only blisters but destruction of the tissue "to the point of gangrene" without any application of heat. According to those witnesses, applications are frequently given by a homemade contrivance, without thermometer or means of adjustment, such as the one used by the physician in this case. In response to a question asked one of the expert witnesses called by the patient as to whether or not in his treatment of such a condition following an abdominal operation he had ever advised an electric cradle and left the installation of it to the patient, or to laymen, he stated that he had done so frequently and that it was customary to advise the use of a device such as was employed by the physician in this case and to leave it to a layman to follow the instructions given. At the close of the evidence, the trial court directed a verdict in favor of the physician and the patient appealed to the Supreme Court of Florida, division A.

The Supreme Court was unable to find any evidence in the record that would have justified a verdict for the patient. The fact, said the Supreme Court, that a blister did result while treatment was being given and that ulcers later appeared on the diseased leg did not of themselves establish negligence on the part of the physician, since the doctrine of res ipsa loquitur has no application under the facts here present. The evidence introduced by the patient falls far short of proving any negligence on the part of the physician. While it is evident that the patient suffered intensely as a result of the remedy used in treating his illness, the fact remains that his leg which was so badly affected was saved. There was no testimony that his physical condition after his ordeal was traceable to aught but the severe phlebitis which followed the operation. Even by the testimony of witnesses called by the patient, it was established, in our opinion, that in this case the proper remedy was used properly. Since we believe that the patient failed in his attempt to fix on the defendant physician the responsibility for the injury he endured, we find no error in the action of the trial court in instructing a verdict for the physician. The judgment in favor of the physician was accordingly affirmed.—*Grubbs v. McShane, 198 So. 208 (Fla., 1940).*

Evidence: Conclusiveness of Blood Grouping Test as Evidence of Nonpaternity.—Where, said the court of appeals of Ohio, Guernsey County, the alleged father of an illegitimate child offers in evidence the results of a blood group test which disclosed that the reputed father could not be the father of the the child, it is not error for the court to refuse the admission of such evidence as conclusive. It should be admitted along with other evidence for whatever weight it may have to prove the nonpaternity of the alleged father.—*State ex rel. Slovak v. Holod, 24 N. E. (2d) 962 (Ohio, 1939).*

Society Proceedings

COMING MEETINGS

American Physiotherapy Association, Asilomar, Calif., July 13-18. Miss Evelyn Anderson, Stanford University, Calif., Secretary.

National Medical Association, Chicago, Aug. 18-22. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

Washington State Medical Association, Seattle, Aug. 24-26. Dr. Vernon W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1931 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

21:257-400 (March) 1941

Physiologic and Physical Laws That Govern Auscultation and Their Clinical Application: Acoustic Stethoscope and Electrical Amplifying Stethoscope and Stethograph. M. B. Rappaport and H. B. Sprague, Boston.—p. 257.

Effect of Reestablishment of Circulation in Completely Ischemic Kidneys on Blood Pressure of Cats, Dogs and Rats. H. A. Lewis, S. D. Leo and M. Prinzmetal, Los Angeles.—p. 319.

Some Principles Governing Supply of Blood to Myocardium in Occlusive Arterial Disease. T. E. Lowe, Melbourne, Australia.—p. 326.

New Piezoelectric Manometer to Record Intracardiac Pressures and for Simultaneous Recording of Intracardiac Electrograms. A. G. Macleod and A. E. Cohn, New York.—p. 345.

Effect of Acetylcholine on Mammalian Heart. A. E. Cohn and A. G. Macleod, New York.—p. 356.

Contrast Roentgen Visualization of Coarctation of Aorta. A. Grishman, M. F. Steinberg and M. L. Sussman, New York.—p. 365.

Ball Thrombi in Heart: Report of Three Cases. C. F. Garvin, Cleveland.—p. 371.

American Journal of Clinical Pathology, Baltimore

11:175-262 (March) 1941

Preparation and Preservation of Human Plasma: I. Collection of Blood and Separation of Plasma. M. M. Strumia, J. J. McGraw and J. Reichel, Bryn Mawr, Pa.—p. 175.

*Diagnosis of Trichinosis by Skin and Precipitin Tests. J. B. McNaught, R. R. Beard and J. D. Myers, San Francisco.—p. 195.

Effect of Colchicine on Chronic Myeloid Leukemia. J. T. Paul, W. O. Brown and L. R. Limarzi, Chicago.—p. 210.

Evaluation of Urinary Quantitative Pregnandiol Determination. H. L. Reinhart, P. J. Reel and G. Y. Shinowara, Columbus, Ohio.—p. 219.

Metals and Cardiovascular System. Z. T. Wirtschafter and M. H. Fineberg, Cleveland.—p. 229.

Torulosis of Central Nervous System: Review of Recent Literature and Report of Case. C. H. Binford, Detroit.—p. 242.

Primary Chorionepithelioma of Ovary. G. R. Backus and E. P. Griffin Jr., Flint, Mich.—p. 252.

Diagnosis of Trichinosis by Skin and Precipitin Tests.—McNaught and his co-workers performed cutaneous or precipitin tests with trichinella antigen on 266 persons. Among these were 36 patients with active clinical trichinosis, 36 ailing persons suspected of having trichinosis because of an eosinophilia and one or more symptoms compatible with trichinosis, and 194 persons hospitalized for conditions in no way suggesting trichinosis. Of the 36 patients with classic signs of trichinosis all but 1 eventually gave positive cutaneous reactions of the immediate type with trichinella antigen. The single negative reaction was in a moribund patient. Seventeen of the 36 persons with a probable diagnosis of trichinosis gave positive cutaneous tests. Among the 194 control persons 6.7 per cent gave immediate positive reactions and 18.1 per cent delayed reactions. Precipitin tests almost agreed with the cutaneous reactions. The delayed reaction occurs early in the infection and has also been seen in long standing quiescent cases. During the second or third weeks the reaction is immediate and consists of a wheal with a zone of erythema. It is the authors' experience that cutaneous and precipitin tests in trichinosis show as high a degree of sensitivity as any other clinical or laboratory procedure. The results of the tests must be interpreted with the same care exercised in interpreting the presence of trichinella in biopsies. Initial negative tests in patients who later show positive reactions should be particularly significant. The epidemiology, clinical picture, physical observations and laboratory tests must all be considered in making the diagnosis. Too much emphasis must not be attached to any one feature. Eosinophilia indicates but is not diagnostic of trichinella invasion. It is valuable in confirming the recent onset of an infection proved by cutaneous and precipitin tests.

American J. Obstetrics and Gynecology, St. Louis

41:355-546 (March) 1941. **Partial Index**

Some Remarks About Maternal Mortality in the South. J. R. McCord, Atlanta, Ga.—p. 355.

Theca Cone and Its Tropism Toward the Ovarian Surface, Typical Feature of Growing Human and Mammalian Follicles. E. O. Strassmann, Houston, Texas.—p. 363.

Deep Cauterization of Cervix: Factor in Reducing Mortality of Hysterectomy: Six Year Survey. B. Z. Cashman and J. S. Frank, Pittsburgh.—p. 379.

Effects of Analgesia on Newborn Infant. C. O. McCormick, Indianapolis.—p. 391.

Nationality and Carcinoma of Cervix. F. R. Smith, New York.—p. 424.

*Skin Test for Diagnosis of Pregnancy. F. H. Falls, V. C. Freda and H. H. Cohen, Chicago.—p. 431.

Objections to Induction of Labor in Normal Pregnant Women. E. L. Cornell, Chicago.—p. 438.

*Pubertas Praecox Due to Ovarian Tumors. C. B. Lull, Philadelphia.—p. 445.

*Treatment of Pelvic Endometriosis. W. T. Dannreuther, New York.—p. 461.

Effect of Combined Administration of Chorionic Gonadotropin and Pituitary Synergist on Human Ovary: Preliminary Report. C. Mazer and E. Ravetz, Philadelphia.—p. 474.

Cutaneous Test for Diagnosis of Pregnancy.—Falls and his associates describe a cutaneous test for diagnosis of pregnancy employing diluted colostrum from primiparous pregnant women. In a pregnant woman the wheal produced by the injection of 0.02 cc. of colostrum intradermally will appear pearly, resembling a fresh mosquito bite with little or no pinkish areola. The site of injection will scarcely be recognizable in an hour, except for the needle prick. A control injection of physiologic solution of sodium chloride produces no reaction beyond a raised area caused by the injection. When the patient is not pregnant the wheal remains raised and pearly until a few minutes after injection, when it increases in diameter and eventually becomes two to three times the original size, without changing color. Then a pink to red areola appears. It is from 1 to 2 inches in diameter and is irregular in contour, color and depth and projects lymphangitic pseudopodiums from its periphery. The reaction steadily grows in intensity for an hour and persists for four or five hours. The wheal of the control injection in nonpregnant women does not increase nor is the areola pigmented. Two hundred and sixty-five women in various stages of pregnancy were tested and the results compared with those of 358 nonpregnant persons (100 adult males, 45 children less than 15 years of age, 50 menstruating women, 50 postpartum cases, 113 normal nonpregnant women or women with various known gynecologic conditions and 50 unknown problem cases). Among the 265 pregnant women there were 5 false reactions; in 2 nonpregnancy reactions were obtained, and the other 3 were weak reactions not indicative of pregnancy. The weak reactions persisted for only forty-five minutes and disappeared within the hour contrary to the reaction seen in nonpregnancy. A weak or false nonpregnancy reaction differs from the true nonpregnancy reaction in the width of the areola and in color intensity, and the wheal does not enlarge after injection. It differs from a pregnancy reaction in that there is some color around the wheal. A similar reaction has been seen in the early puerperium and during labor. Of the 113 nonpregnant women tested, typical nonpregnancy reactions were obtained in all but 4. These 4 women were in the menopause for from five to seventeen years, 3 of them had advanced group 3 carcinomas of the cervix uteri and the fourth had a simple procidentia seventeen years after the last menstrual period. The 50 menstruating women gave nonpregnancy reactions. The reaction of the 45 children was similar to that seen in pregnancy; after the age of 10 modified nonpregnant reactions were seen in both males and females. None of the 100 men studied gave positive pregnancy reactions; 3 gave modified nonpregnancy reactions. All but 3 of the 50 postpartum women gave nonpregnancy reactions, whether or not they were nursing their infants. The 3 pregnancy reactions were in women eight weeks post partum; 1 was menstruating and 2 admitted exposure, but sufficient time had not elapsed to determine whether pregnancy existed. From the results it appears that nonpregnant persons have become sensitized to a specific protein contained in colostrum from primiparous women. The negative reactions in children before puberty suggest that they have not yet produced and absorbed enough of this protein to become sensitized to colostrum. The reaction of the adult males sug-

gests that the male breast secretes sufficient of the specific solution to sensitize but not to immunize. Older patients, both male and female, gave a reaction of diminished intensity which decreased with increased age. The test was applied to 50 problem patients in an effort to diagnose early pregnancy from one to three weeks after the first missed menstruation. In spite of the fact that early pregnancies may be present, may produce a reaction and may terminate by death and expulsion of the fetus without sufficient clinical evidence to prove or disprove them, a correct diagnosis was made in 46. In these, sufficient time has elapsed to prove the correctness of the test. Considerable familiarity with the test is necessary for the correct interpretation of the reactions. If the foregoing results are confirmed, the test will make the diagnosis of early pregnancy much simpler, quicker and more economical than the methods now used.

Pubertas Praecox Due to Ovarian Tumors.—Lull cites 2 cases of ovarian tumor associated with precocious puberty. He considered 1 of the tumors to be a typical granulosa cell tumor, the other a simple follicular cyst of the ovary. The fact that the second patient responded to operative procedure and returned to normal infantile type leads him to believe that surgical intervention is indicated in these tumors, even though they are not of the granulosa cell type. Functioning tumors of the ovary today represent such broad possibilities as to be of interest to the medical profession in general. From an endocrinologic point of view these tumors furnish definite evidence of hormone production and its clinical effects. To the embryologist the various phases of cellular differentiation are of especial interest. The general interest in the study of these tumors has been stimulated to such a degree that today a positive diagnosis and a more favorable prognosis are more likely in the majority of cases.

Treatment of Pelvic Endometriosis.—During the last ten years Dannreuther operated on 115 women with endometriosis. Of these, 39 were instances of adenomyosis, 10 of adenomyoma, 63 of "chocolate" ovarian cyst and widespread endometriosis, and 3 of endometrioma. A number of additional patients were seen in whom a tentative diagnosis of endometriosis seemed warranted but whose discomfort was not intolerable. Progesterone has apparently helped to keep some of these young women comfortable. Others presented clinical evidence of the disease during operation but pathologic study of the excised tissue failed to verify the diagnosis. The author states that it is most important to defer the actual pelvic operation until the pelvic organs have been freed from all omental and intestinal adhesions and normal anatomic relationships have been restored. Manipulations to mobilize pelvic viscera should be started in the deepest possible recesses of the culdesac and continued upward. Dissecting maneuvers begun at the top of the agglutinated area result in shredding of tissue, extensive bleeding and general difficulties. When a huge tumor is impacted in the true pelvis, a longitudinal incision on the anterior aspect of the body of the uterus facilitates removal by enucleation or morcellation. This permits a lateral collapse of the myometrium and allows access to the ovarian and uterine vessels. If the mass is intraligamentary, it can be partly or completely mobilized by making a parallel incision just below the course of the round ligament and detaching the parametrium with the fingers. Chocolate cysts are often extremely thin walled and inadvertently ruptured. Prompt use of suction enables the operator to dispose of the contents of the cyst and to clear the operative field. If the uterovesical fold of peritoneum and the bladder wall are densely infiltrated it is wiser to leave some of the uterus attached to the bladder than to jeopardize the wall of the bladder by overenthusiastic separation. This is true when the lower uterine segment and rectum are extensively involved. In conservative ovarian procedures in young women, especially after ovarian resection, it is best to shorten the utero-ovarian ligament, thus elevating the remaining tissue out of the pelvis and maintaining its position close to the uterine cornu. In some cases areas may remain which cannot be peritonized. Under such circumstances one or two sheets of gutta-percha tissue may be used to wall off the intestinal coils and omentum from the pelvis. For persistent oozing from some raw surface a gutta-percha cigaret drain with a long iodoform gauze end is of value. Attempts to clamp and ligate all small bleeding points are futile. All the drains are brought out of the lower angle of the abdominal wound and removed after forty-eight hours. They are evidently of service in preventing subsequent intestinal obstruction. Intrauterine radium therapy may be effective in the treatment of adenomyosis, but the value of roentgen therapy for adenomyoma and chocolate cysts is questionable.

American Journal of Ophthalmology, St. Louis

24:247-364 (March) 1941

Spherophakia with Glaucoma and Brachydactyly. S. J. Meyer and T. Holstein, Chicago.—p. 247.
Accidental Involvement of Eyes in Vaccinia. A. O. Pfingst, Louisville, Ky.—p. 257.
Protein Content of Reformed Aqueous Humor in Man. P. C. Kronfeld, Chicago; C. K. Lin and T. H. Luo, Peking, China.—p. 264.
Function and Structure of Eye. E. Jackson, Denver.—p. 277.
Clinical Studies Concerning Alleged Synergistic Role of Benzedrine and Paredrine in Homatropine Cycloplegia. W. F. Moncrieff and K. J. Scheribel, Chicago.—p. 282.
Illumination Standardization of Snellen Chart. H. G. Martin, Milwaukee.—p. 287.
*Local Use of Sulfanilamide Compounds in Eye. J. S. Guyton, Baltimore.—p. 292.
Modification of Hotz Operation for Entropion Due to Trachoma. J. S. Maxwell, Fairmont, W. Va.—p. 298.
Extrafoveal Visual Acuity as Measured with Snellen Test Letters. E. Ludvigh. Boston.—p. 303.
*Droughts as Factors in Development of Senile Cataract. P. W. Salit, Iowa City.—p. 310.
Local Treatment of Gonorrheal Conjunctivitis with Sulfanilamide Powder. P. Panneton, Montreal, Canada.—p. 314.

Local Use of Sulfanilamide Compounds in Eye.—Guyton treated 18 patients with bilateral catarrhal conjunctivitis with a 5 per cent sulfanilamide ointment in one eye and a control ointment (without sulfanilamide) in the other eye. The ointments were instilled into the conjunctival sacs of the two eyes every hour while the patient was awake. In 4 of 10 patients with bilateral staphylococcic conjunctivitis the cultures became negative in the two eyes simultaneously, in 4 the cultures remained positive in both eyes throughout the period of observation and in 2 they became negative in the eye treated with the sulfanilamide ointment before they became negative in the control eye. The cultures of all 6 patients with bilateral Koch-Weeks conjunctivitis either became sterile at the same time in the two eyes or remained positive throughout the period of observation in both eyes. The cultures of 1 patient with alpha streptococcic conjunctivitis and 1 with pneumococcic conjunctivitis became sterile in the two eyes at the same time. From these results no practical value can be ascribed to the use of sulfanilamide ointment locally for catarrhal conjunctivitis due to the organisms mentioned. The 5 per cent sulfanilamide ointment was used in treating 5 patients with trachoma for periods ranging from two to forty-two days; 3 patients were not benefited and in the other 2 there was definite improvement but not an absolute cure. The 2 latter patients used the ointment for forty-two days. The omission of treatment at night must have adversely affected the local value of the drug, but still there is little evidence that sulfanilamide ointment is of any practical value in trachoma. In 1 patient with gonococcic conjunctivitis no beneficial effect was observed after hourly instillations of sulfanilamide ointment for twenty-four hours. Every case of infected corneal ulcer treated with sulfanilamide ointment healed quite promptly. The patients were treated with the 5 per cent sulfanilamide ointment every hour day and night. Seven staphylococcic ulcers, all of which were more or less severe and 3 of which were hypopyon ulcers, were completely healed in from one to twelve days, 1 Koch-Weeks ulcer with hypopyon healed completely in twelve days and 2 severe ulcers of undetermined etiology healed in one and three days, respectively. Two staphylococcic ulcers, 1 with hypopyon, were treated with 5 per cent sulfapyridine ointment and healed in six and eleven days, respectively.

Droughts as Factors in Senile Cataract.—According to Salit, sudden increases in the incidence of cataract were noticed at the eye clinic of the State University of Iowa immediately following the statewide droughts of 1913-1914, 1921-1922-1923, 1930-1931, 1935 and 1937. In all, 1,863 adult patients with cataracts had been seen during this time. Of these, 1,152 were men and 711 women. It is concluded that some of the agencies responsible for senile cataract consist in such factors as prolonged exposure to intense sunlight, dust, winds and extreme

changes in temperature and humidity of the open spaces. The female clientele was represented chiefly by women who were engaged in ordinary housework. Most of the men worked under conditions in which they often received more or less severe blows on the face or the head, were exposed to radiant energy, heat and various gases from furnaces and acetylene torches as well as intense sunlight, dust, wind and the extreme changes in temperature and humidity of the open spaces or the poisonous carbon monoxide gas of garages and machine shops.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

45:321-480 (March) 1941

Myelographic Diagnosis of Intramedullary Spinal Cord Tumors. A. E. Valker, C. M. Jessico and A. W. Marcovich, Chicago.—p. 321.
Cerebral Hemiatrophy with Compensatory Homolateral Hypertrophy of Skull and Sinuses and Diminution of Cranial Volume. A. T. Ross, Indianapolis.—p. 332.
Lesions of Lungs in Lymphomatoid Diseases. L. F. Craver, R. R. Braund and H. Y. Tyler, New York.—p. 342.
Roentgenoscopy as Diagnostic Aid in Coronary Occlusion: Study of 164 Cases. A. M. Master, New York.—p. 350.
*Roentgenoscopy of Pharynx in Myasthenia Gravis Before and After Prostigmine Injection. R. S. Schwab and H. R. Viets, Boston.—p. 357.
Roentgen Findings in Exploration of Bile Ducts. J. A. Saralegui, Buenos Aires, Argentina, South America.—p. 360.
Aneurysm of Left Ventricle: Report of Two Cases. J. J. Peters, Tuskegee, Ala.—p. 371.
Pericapsular Ossification of Shoulder: Report of Case. H. W. Grimm, Pittsburgh.—p. 379.
Carcinoma of Head of Pancreas: Report of Case. J. M. Flynn, Rochester, N. Y.—p. 380.
Radiation Therapy in Cancer of Skin. B. P. Widmann, Philadelphia.—p. 382.
Clinical Classification of Cancer of Cervix. H. E. Schmitz and P. A. Nelson, Chicago.—p. 395.
*Treatment of Carcinoma of Ovary: Improvement of Results with Postoperative Radiotherapy. R. I. Walter, A. L. Bachman and W. Harris, New York.—p. 403.
Relief of Symptoms in Raynaud's Disease by Roentgen Therapy: Report of Case. A. S. Rothberg, New York.—p. 412.
Effect of High Voltage Roentgen Rays on Heart of Adult Rats. J. E. Leach and K. Sugiura, New York.—p. 414.
Relation of Sex Hormones to Tumors of Female Reproductive System. R. R. Greene and J. I. Brewer, Chicago.—p. 426.
Pharmacology of Human Blood After Its Exposure to Roentgen Rays. D. I. Macht, Baltimore.—p. 446.

Roentgenoscopy of Pharynx in Myasthenia Gravis.—Since dysphagia occurs in about 60 per cent of patients with myasthenia gravis and since it is the third most common symptom, it seemed important to Schwab and Viets to recognize dysphagia when it first occurs and to estimate how severely the pharyngeal muscles are involved. The authors took advantage of the fact that the pharyngeal muscles are affected in myasthenia gravis by prostigmine, to demonstrate the response to the drug in 19 patients by roentgen visualization of the pharyngeal cavity during barium sulfate ingestion. A group of patients with other forms of dysphagia were similarly studied. Of the 19 patients so examined, 17 responded so strikingly to prostigmine by injection that practically no barium sulfate was retained in the pharynx. These same patients had also done well with prostigmine treatment by mouth. The technic of roentgenoscopic examination is described. In a severe case, before the intramuscular injection of prostigmine, the thin barium will be retained in the pharynx in such a manner as to be obvious on the roentgenogram. Fifteen minutes after injection, only in cases of myasthenia gravis, the barium passes through the pharynx in a normal manner. The degree of improvement in swallowing, as demonstrated by this method, is an excellent adjunct to the "prostigmine test."

Treatment of Carcinoma of Ovary.—Walter and his associates review the literature on the postoperative radiation therapy of ovarian carcinoma and present 124 additional cases treated by surgery alone or by surgery and postoperative radiation. They believe that failure to classify the cases according to stage of progression has made evaluation of the early results of therapy difficult. The classification they employ groups the cases into four stages: (1) a primary unilateral and completely removable tumor with no visible metastases, (2) the presence of local metastases which are completely removable with the primary tumor, (3) the presence of local metastases which are only partially removable with the primary tumor and (4) cases with advanced carcinomatosis peritonei for which exploratory celiotomy or removal of large tumor masses are diagnostic and palliative measures. In stage 1 and 2 cases reported in the literature the supplementary use of radiation therapy did not significantly alter the five year survival rate, but the increased number of five year survivals of stage 3 cases in the irradiated group appears to be of statistical significance. The prognosis in stage 4 universally is extremely grave. In the authors' 124 cases the primary operative mortality was 9.8 per cent. Sixty-three patients with ovarian carcinoma were treated by surgery alone. Of these 4, or 6.3 per cent, survived five years. Of the 61 treated by surgery and postoperative radiation therapy 31 received moderately large (adequate) amounts of radiation and 7 were alive five years; 20 received "inadequate" radiation dosage and 2 survived five years, and of 10 given indeterminate roentgen therapy 3 survived five years. The major guide in prognosis and type of therapy to be employed is the clinical stage of the disease. Morphologic classification and microscopic grading appear to be of minor importance. Maximal radiation therapy should be employed whenever possible. There is no unanimity at present as to what constitutes adequate dosage. The authors believe that a dose closely approximating normal tissue tolerance should be delivered during one course of treatment. They employed the following physical factors: from 180 to 200 kilovolts, from 0.5 to 2 mm. of copper or equivalent filtration and from 50 to 80 cm. target skin distance. Two anterior pelvic, two gluteal and two ischial ports were generally used. Two hundred roentgens (in air without backscatter) is usually given to each of two fields daily, and the ports are treated in rotation. The average near tolerance dose is from 2,000 to 2,500 roentgens per field when treated for from one to one and a half months. The treatment should be individualized. Since the effectiveness of roentgen therapy depends in great measure on the dosage administered, it would appear advisable, at least theoretically, to allow the normal uterus to remain in order to permit the use of intrauterine radium therapy. The results reported from this therapy are encouraging. Preoperative radiation therapy in proved stage 4 cases is advocated.

Archives of Dermatology and Syphilology, Chicago

43:607-762 (April) 1941

Urticaria Solaris: Review of Literature and Report of Case. H. L. Arnold Jr., Honolulu, Territory of Hawaii.—p. 607.
*Clinical Response of Certain Dermatologic Diseases to Sulfathiazole. L. G. Beinhauer, A. F. Knoll and S. R. Perrin, Pittsburgh.—p. 621.
Lichen Planus et Acuminatus Atrophicans (Feldman): Folliculitis Decalvans et Lichen Spinulosus (Little). F. A. Ellis, Baltimore, and H. Kirby-Smith, Washington, D. C.—p. 628.
Late or Delayed Reactions to Patch Tests. G. V. Kulchar, San Francisco.—p. 636.
Role of Evolution in Dermatology. C. Lerner, New York.—p. 641.
Tattoo Type Blemishes Following Use of Iron Salts in Treatment of Rhus Dermatitis. R. S. Weiss, A. H. Conrad and A. H. Conrad Jr., St. Louis.—p. 650.
Familial Benign Chronic Bullous Dermatosis. A. G. Franks and E. F. Traub, New York.—p. 657.
Postrhagadic Scars. E. A. Strakosch and L. M. Nelson, Minneapolis.—p. 664.
Fixed Eruptions from Various Drugs and Other Agents: Polyvalent Specific Sensitivity. E. W. Abramowitz, New York.—p. 672.
Norwegian Scabies. S. E. Sweitzer and L. H. Winer, Minneapolis.—p. 678.
Ascorbic Acid and Arsphenamine Dermatitis: Experimental Study. F. M. McDonald, Akron, Ohio, and H. H. Johnson, Cleveland.—p. 682.
Dermatitis of Hands Caused by Liquid Petrolatum in Proprietary Hair Tonic: Report of Case. H. D. Niles, New York.—p. 689.
Fixed Eruptions: Report of Unusual Condition Due to Sulfanilamide. M. H. Goodman, Baltimore, and R. D. Arthur, Springfield, Ohio.—p. 692.
Dermatitis from Indirect Exposure to Fur Dye: Report of Case. H. D. Niles, New York.—p. 698.

Sulfathiazole and Dermatologic Diseases.—Beinhauer and his co-workers used sulfathiazole in the treatment of 103 patients with infectious eczematoid dermatitis, acne vulgaris, furunculosis, contagious impetigo, lupus erythematosus, barbers' sycosis, secondary pyogenic infection or lymphangitis complicating dermatophytosis. Other forms of treatment had failed to cure 58 of these patients. The dosage consisted of 0.5 Gm. tablets four times daily; it was modified for children according to age. The authors' experience with sulfathiazole paralleled that of investigators who have used other sulfanilamide compounds. They found sulfathiazole to be efficacious for the treatment of the conditions listed. The response of the pustular type of acne vulgaris was most dramatic. A pronounced involution

was observed within seven to fourteen days, and complete resolution was then obtained after eight weekly roentgen treatments (75 roentgens of unfiltered roentgen rays). The patients have remained free from the disease for the three months of posttreatment observation. The results warrant further study of a larger series. The response of discoid lupus erythematosus was encouraging but not as pronounced as reported from sulfanilamide therapy. Sulfathiazole therapy failed in the treatment of pemphigus, pemphigus erythematodes (Senear-Usher), dermatitis herpetiformis, herpes zoster and lichen planus. Sulfathiazole appears to be less toxic than other sulfanilamide compounds, decidedly less than sulfapyridine, and probably is better suited for the ambulatory patient. The best results were obtained in cases in which pyogenic infection played an etiologic role. Recognized dermatologic therapy for relatively benign conditions is not to be discarded in favor of sulfathiazole. It is offered as another therapeutic approach especially when other recognized measures fail or as a substitution therapy in selected cases.

Archives of Otolaryngology, Chicago

33:509-682 (April) 1941

Postoperative Sinus Thrombosis. H. Brunner, Chicago.—p. 509.
Laryngofissure for Cancer of Larynx: Observations Based on Series of Fifty Consecutive Cases. C. L. Jackson, Philadelphia.—p. 520.
Nasal Obstruction and Impairment of Hearing: Report of Forty-Six Cases of Submucous Resection with Audiometric Studies. M. R. Johnson, Red Wing, Minn.—p. 536.
Roentgen Ray Therapy for Patients with Chronic Sinusitis. N. A. Youngs, Grand Forks, N. D.—p. 550.
Technic for Reproduction of Anatomic and Pathologic Models in Latex Rubber: Improved Method. S. Peluse, Los Angeles.—p. 560.
Rhythmic Stimulation of Labyrinth. E. A. Spiegel, Philadelphia.—p. 572.
Mechanism and Treatment of Neurotic Symptoms Especially of Ear, Nose and Throat. S. H. Kraines, Chicago.—p. 579.
Symptoms of Gastrointestinal Origin in Ear, Nose and Throat. W. L. Gatewood, New York.—p. 592.
Sodium Morrhuate Therapy for Chronic Simple, Vasomotor and Hypertrophic Forms of Rhinitis. E. A. Thacker and G. H. Hauser, New Orleans.—p. 600.
The Nasopharynx. S. J. Crowe, Baltimore.—p. 618.
Spreading of Vaccine in Nasal Vaccination. E. Weiss, Chicago.—p. 623.
Reactions of Laryngeal Tissues Following Extended Fractional Roentgen Irradiation. G. R. Brighton, F. Altmann and C. Hagan Jr., New York.—p. 631.

Archives of Surgery, Chicago

42:643-800 (April) 1941

*Changes in Liver Associated with Hyperthyroidism, with Study of Plasma Prothrombin Levels in Immediate Postoperative Period. J. W. Lord Jr. and W. D. Andrus, New York.—p. 643.
Pulmonary Embolism: Experimental Study of Variations in Volume Blood Flow in Inferior Vena Cava of Dog. W. J. Potts, Oak Park, Ill., and S. Smith, Chicago.—p. 661.
*Macroscopically Nonpathologic Gallbladder: Clinicopathologic Study. P. C. Doehring, Rochester, Minn.—p. 665.
Experiences with Intramedullary Tractotomy: I. Relief of Facial Pain and Summary of Operative Results. F. C. Grant and L. M. Weinberger, Philadelphia.—p. 681.
Functions of Extrahepatic Bile Ducts and Secretory Function of Liver: Parts IV and V. T. Murakami and H. Uchiyama, Fukuoka, Japan.—p. 693.
Anomaly of Right Inferior Laryngeal Nerve. J. deJ. Pemberton and J. M. Miller, Rochester, Minn.—p. 712.
Progressive Bacterial Synergistic Gangrene: Involvement of Abdominal Wall; Report of Unusual Case. M. E. Lichtenstein, Chicago.—p. 719.
Treatment of Tuberculosis of Shoulder: Study of End Results. J. D. Wassersug, Middleboro, Mass.—p. 730.
Relation of Scalenus Anticus Muscle to Pain in Shoulder: Diagnostic and Therapeutic Value of Procaine Infiltration. L. Kaplan, Philadelphia.—p. 739.
Papilloma of Choroid Plexus. R. Y. Herren, Portland, Ore.—p. 758.
Primary Torsion and Infarction of Appendices Epiploicae. B. Pines, J. Rabinovitch and S. B. Biller, Brooklyn.—p. 775.
Rapid Tissue Diagnosis: Comparison of Microscopic Diagnoses Obtained from Terry's Razor Sections and from Paraffin Sections in 4,326 Biopsies. C. A. Hellwig, Wichita, Kan.—p. 788.
Spinal Anesthesia and Surgical Shock. H. Koster, A. Shapiro and A. Goldberg, Brooklyn.—p. 795.

Changes in Liver in Hyperthyroidism.—During the last eight years 680 patients with hyperthyroidism have been subjected to some form of operation on the thyroid at the New York Hospital; 16 of these patients died, 8 in typical thyroid crisis. Lord and Andrus discuss pathologic changes in the liver of 6 patients on whom necropsies were performed. The changes resembled those described by Beaver and Pemberton. The weight of each liver was within normal. Grossly, the picture varied from that of a liver of normal color and consistency to that of a fine nodular cirrhosis with increased consistency. Moderate to decidedly yellow mottling was exhibited by all livers. Microscopically the three main observations were (1) large droplets of fat diffusely distributed in the parenchymatous cells, (2) central necrosis of the hepatic cords with marked infiltration of the necrotic areas by polymorphonuclears and erythrocytes and (3) connective tissue proliferation in the portal spaces with an accumulation of lymphocytes. The levels of plasma prothrombin as an estimation of hepatic function were determined in 36 patients with toxic diffuse and toxic nodular goiter. No deaths occurred during the period of study. As controls the authors followed 10 patients with nontoxic goiter, 10 who had undergone hernioplasties, 9 who had been subjected to major abdominal operations but whose livers had not been handled mechanically and 5 patients who had undergone cerebral operations. Data from the study show that the level of plasma prothrombin in preoperative hyperthyroidism has no direct correlation with the severity of the hyperthyroidism, the duration of the illness or the age or sex of the patient. Likewise the type of goiter bore no relation to the level of plasma prothrombin. However, postoperatively a significant fall occurred in 29 of the 36 patients with toxic goiter. The fall was closely correlated with the severity of the postoperative course as evidenced by temperature, pulse rate and clinical appearance. The level of plasma prothrombin of 6 patients fell to 50 per cent or lower. Although there was no significant fall in the postoperative level of plasma prothrombin in the 10 instances of nontoxic goiter, the slightly reduced preoperative level rose toward normal postoperatively. In contrast, the curve for toxic goiter showed slight improvement on preoperative therapy, and after operation a precipitate fall occurred in twenty-four hours with a subsequent return toward the normal level at the end of seven days. No postoperative fall occurred in the patients who underwent major abdominal or cerebral operations. Fever alone cannot explain the fall, as the 5 patients undergoing cerebral surgery had prolonged fevers. Nine of the 10 patients on whom hernioplasties were performed showed no postoperative fall in the level of plasma prothrombin. In the tenth patient, who showed a moderate degree of shock during operation, the level of plasma prothrombin two hours after the operation was 50 per cent, but in twenty-four hours this had risen to 90 per cent and in forty-eight hours to 100 per cent. A study of seven of the more severe postoperative reactions in hyperthyroidism reveals that the fall occurred concomitantly with the rise in the pulse rate and temperature, but that full recovery of hepatic function lagged behind the return of the temperature and pulse rate to normal. The authors discuss the influence of the carbohydrate-fat ratio of the diet and of the vitamin B complex on the liver and suggest that in the preoperative preparation of patients with hyperthyroidism a high caloric, high carbohydrate, high protein, low fat diet supplemented with liberal amounts of vitamin B complex should be employed.

Macroscopically Nonpathologic Gallbladder.—Doehring reports a clinicopathologic study of macroscopically normal gallbladders removed because of the diagnosis of cholecystitis. Although individual results are unpredictable, it has been found that removal of such a gallbladder results in relief of symptoms in only a slightly smaller percentage of cases than in those containing stones and in acalculous cholecystitis. Of the 1,981 patients operated on at the Mayo Clinic during the years 1931 to 1933 the gallbladders of 81.9 per cent contained stones. A postoperative follow-up interval of at least five years was believed sufficient for discounting the benefits obtained from prolonged rest in bed, supervised convalescence and a nutritious diet. The remaining 114 gallbladders (5.75 per cent) were normal. These gallbladders, with the exception of 10 not included because of coexisting abdominal pathologic conditions, form the basis of this report. The histories, symptoms, operative observations and pathologic change were correlated. The results were determined through correspondence. The macroscopically nonpathologic gallbladders were found at operation even in the presence of a typical history of disease of the gallbladder with biliary colic, jaundice and tenderness in the right upper abdominal quadrant. Half of the patients with apparently normal gallbladders gave a history typical of disease of the

gallbladder, one third had typical biliary colic and one third gave a history of jaundice. Half of the patients showed evidence of nervous exhaustion or neurotic tendencies. Almost 90 per cent of the cholecystograms showed normally functioning gallbladders. There was no constant relation of the operative observations to any of the preoperative ones. No evidence was found to support the view that hepatitis as described at the time of operation had any significant relation to the preoperative observations or to the prognosis. Microscopically, all specimens showed varying degrees of lymphocytic infiltration, although there was no relation between the degree of infiltration and the preoperative signs, the operative observations or the prognosis. The results of cholecystectomy were similar to those obtained by others in similar cases. The good results were fewer than in those cases in which definite pathologic lesions or stones were present. Fifty-five per cent of the patients were cured, 21 per cent were improved and 23 per cent obtained no relief. The operative mortality was 1 per cent. There is no way of foretelling before or at operation which patients with macroscopically normal gallbladders will be relieved of their symptoms after cholecystectomy. Approximately 1 of 4 such patients received no benefit from operation. The good results were slightly higher among patients with a history of colic and a clinical picture more or less typical of disease of the biliary tract.

Bulletin of Johns Hopkins Hospital, Baltimore

68:203-290 (March) 1941

"Personality Disorders" Causing Digestive Complaints. G. C. Robinson, Baltimore.—p. 203.
Influence of Estrin on Callous Formation. R. G. Hills and J. A. Weinberg, Baltimore.—p. 238.
Experimental Studies on Intraneural Spread of Poliomyelitis Virus. D. Bodian and H. A. Howe, Baltimore.—p. 248.
Duration of Infectivity of Treponema Pallidum in Citrated Blood Stored Under Conditions Obtaining in Blood Banks. T. B. Turner and T. H. Diseker, Baltimore.—p. 269.

Canadian Medical Association Journal, Montreal

44:217-326 (March) 1941

Clinical Use of Sulfanilamide, Sulfapyridine, Sulfathiazole, Sulfaguanidine and Sulfadiazine in Prophylaxis and Treatment of Infections. P. H. Long, Baltimore.—p. 217.
Some Aspects of Aviation Medicine. R. W. Ryan and G. E. Hall, Ottawa.—p. 227.
*Source and Prevention of Septic Infection of Wounds. R. Hare and Reba E. Willits, Toronto.—p. 230.
Sulfathiazole Therapy of Gonorrhea. C. H. Greig, J. L. Uren and D. R. Mitchell, Toronto.—p. 237.
Sodium Sulfathiazole in Urology. D. R. Mitchell and F. H. Coté, Toronto.—p. 240.
The Physician's Interest in Gallbladder Disease. A. H. Gordon, Montreal.—p. 245.
Diabetes Mellitus: Problems of Its Control. Lillian A. Chase, Regina, Sask.—p. 250.
Periodic Fluctuations in Blood Picture in Cancer and Their Bearing on Radiation Therapy. O. C. Gruner, Montreal.—p. 256.
Significance of Gallop Rhythm. F. C. Hamilton, Toronto.—p. 260.
Differential Diagnosis of Urologic Conditions from Abdominal Lesions. S. A. Wallace, Kamloops, B. C.—p. 265.
Technic in Establishing Diagnosis of Genitourinary Malformation. C. E. Snelling, Toronto.—p. 269.
Treatment of Pneumonia in Childhood. R. R. Struthers, Montreal.—p. 271.
Few Common Problems in Infancy. P. E. Williams, Hamilton, Ont.—p. 275.
Cesarean Section. D. M. Low, Toronto.—p. 280.
Prevention and Treatment of Lacrimation. J. A. MacMillan, Montreal.—p. 284.
Meningitis of Newborn Due to Pseudomonas Aeruginosa. A. E. Allin, Fort William, Ont.—p. 288.

Source and Prevention of Septic Infection of Wounds.—Hare and Willits studied cases in emergency departments with the view of determining the source of the hemolytic streptococcus responsible for wound infection and its possible prevention. The study indicates that at the time of infliction the wound is probably not infected, for the air, the projectile, the soil and the dust, the clothing and the skin of normal persons are normally not significantly infected with these organisms. Of 244 wounds examined soon after infliction, only 1 was found to have hemolytic streptococci in it and the strain was a member of group H which is usually not pathogenic for man. This wound did not become infected. All wounds must be considered susceptible of infection until actually healed. Eighty of the 244 wounds were reexamined later (as far as possible forty-eight hours after infliction); 4 were found to harbor hemolytic streptococci (Streptococcus pyogenes), 3 were acquired within forty-eight hours, but in the fourth they were absent on the sixth day but present and causing clinical infection on the tenth day. Numerous workers have found that 8.7 per cent of wounds examined from one to three days after infliction had hemolytic streptococci, whereas in from four to twelve days the percentage was 18.5 and after from thirteen to forty days it was 20. Thus Streptococcus pyogenes is not present in the majority of wounds at the time of infliction but is of exogenous origin. The exogenous sources are two: (1) the nasopharynx of patients, convalescents and carriers and (2) pyogenic infections. The importance of the throat carrier or contaminated air from suppurating lesions as the source of many varieties of hemolytic streptococcus infection has been demonstrated by many workers. It is highly probable that infection of wounds by Streptococcus pyogenes expelled from the nasopharynx of the patient himself, from an attendant or indirectly by their hands are the most important avenues, for during such time casualties are not likely to have any contact with an actively suppurating infection. Once in the hospital the same sources may still be responsible, but another menace is added: suppurating wounds of other patients in the ward. The authors state that the majority of their staphylococcic infections were of exogenous origin. No less than 68 per cent harbored staphylococci, but of 67 strains examined only 13 were found to be Staphylococcus aureus. The remainder can be considered as not pathogenic. The clean wounds of 4 patients examined soon after infliction became infected with Staphylococcus aureus between the first and succeeding examination. For preventing infection of wounds the obvious method is the wearing of an efficient mask by all who come in contact with the wounded. If the wearing of masks is not feasible the operator must refrain from speaking, coughing or sneezing. For the control of infection by indirect transfer by hands, clothing and the like, it is advisable that the bare hands should at no time come in contact with open tissue without suitable treatment; clean sterilized gloves should be changed for each case, unsterilized gloves washed thoroughly with soap and water and dipped in an antiseptic of adequate strength or the hands should be well washed with soap and water. The latter alone may suffice to cleanse them of hemolytic streptococci, but it is doubtful whether they will be free from Staphylococcus aureus. The use of handkerchiefs as an emergency dressing should be forbidden, as those of nasopharyngeal carriers have been shown to be contaminated. The transfer of organisms to a wound from a nasopharyngeal carrier not in direct contact with the patient is by air pollution. Therefore all such patients should be examined bacteriologically and, if necessary, isolated in order to guard against this source of infection. An infected wound may be due to the organisms from a nasopharyngeal infection in a patient preceding another on the operating table. The nasopharynx of the wounded man with a suppurating lesion and his bedclothes, skin and dressings should be looked on as potentially infective for other persons. Nurses can decrease air polution by carefully folding and placing dressings in a covered receptacle at once and by disturbing the bedclothes as little as possible when making beds. Blankets, sheets, pillow cases and bedspreads should be carefully rolled off and as carefully rolled on again. Dirty sheets and other bedding, with as little shaking or disturbance as possible, should be placed into some suitable receptacle. Sweeping and dusting should be done only after a moist or oily dressing has been applied to keep the dust down.

Journal of Pharmacology & Exper. Therap., Baltimore

71:203-300 (March) 1941. **Partial Index**

Effect of Sulfur Compounds in Diet on Sulfanilamide Cyanosis and Anemia. A. P. Richardson, San Francisco.—p. 203.
Toxicity of Naphthoquinones with Vitamin K Activity in Mice. M. B. Shimkin, Bethesda, Md.—p. 210.
Role of Liver in Detoxification of Steroid Hormones and Artificial Estrogens. H. Selye, Montreal.—p. 236.
Reliability of Cobalt-Isopropylamine Color Reaction for Amytal: Evaluation of Chromogenic Substances in Urine. R. F. Krause and R. F. Riley, Rochester, N. Y.—p. 287.

Journal of Urology, Baltimore

45:253-512 (March) 1941. **Partial Index**

Treatment of Rupture of Kidney. O. S. Lowsley and J. H. Menning, New York.—p. 253.
Body Section Pyelograms in Children. N. W. Bourne and H. W. Hefke, Milwaukee.—p. 296.
Carcinoma of Bladder: Correlation of Pathologic and Clinical Data as Basis for Treatment. E. M. Watson and C. C. Herger, Buffalo.—p. 331.
Evaluation of Supervoltage Treatment of Bladder Tumors. F. H. Colby, Boston.—p. 337.
Treatment of Bladder Diverticulum: Report of Thirty Cases. J. C. Kimbrough, Washington, D. C.—p. 368.
Bladder Control: Brief Review. A. Ecker and T. F. Laurie, Syracuse, N. Y.—p. 397.
The Male Climacteric: Its Diagnosis and Treatment. R. J. Douglas, Muskegon, Mich.—p. 404.
Transurethral Prostatic Resection: Statistical Study Based on 300 Consecutive Cases. H. N. Dorman, Washington, D. C.—p. 411.
Critique of Present Methods in Surgery of Prostate Gland. J. F. McCarthy, New York.—p. 428.
*Mortality in Surgery of Prostate. S. A. Vest, Charlottesville, Va.—p. 439.
Galvanic Cautery Transurethral Resection: Report of 290 Cases. E. Kackley, Soda Springs, Idaho.—p. 451.
Periostitis Pubes Following Suprapubic Cystostomy. W. K. Wheeler, Newark, N. J.—p. 467.
Diverticulum of Female Urethra. F. J. Parmenter, Buffalo.—p. 479.
Significance of Low Blood Urea in Presence of Anuria. R. K. Ratliff, Ann Arbor, Mich.—p. 501.

Mortality in Surgery of Prostate.—Vest reports a series of 365 consecutive operations for the relief of prostatic obstruction with a mortality rate of 1.6 per cent. The patients were cared for in a public ward service, and their operations and care were the responsibility of residents trained at the Brady Urological Institute. Perineal prostatectomy was performed on 221 patients, suprapubic prostatectomy on 12 and transurethral resection on 132. The majority of the patients were considered poor surgical risks. Of the patients treated by prostatectomy 112, or 48 per cent, were admitted either in a state of acute retention or had been catheterized for acute retention just before admission. Medical complications were present on admission in 140 of the 233 patients. The frequent finding of advanced senility and the 1 instance of arteriosclerosis was omitted from the tabulation of medical complications unless it was unusually severe. Increased blood pressure was common; 48 per cent of the patients had a systolic blood pressure above 150, with an average of 179.5 systolic and 100 diastolic. Urologic complications were present in 108 of the 233 patients; in 60.5 per cent the urine was infected on admission. This high incidence of infected urine was due for the most part to instrumentation. The perineal prostatectomy was carried out according to the technic of Young, as was the postoperative care of the patient. In practically every instance, by the time the wound was healed, the patient was afebrile, walking and about ready to be discharged. The average healing time was twenty-one days. The transurethral methods for the 132 patients included Young's punch, Stern-McCarthy resectoscope, and Braasch's and Thompson's modifications of Young's punch. Medical and urologic complications, retention, renal impairment and infected urine for this group were almost identical with that of the prostatectomy group. Fifteen patients required second resections. The operative mortality for the 233 patients treated by prostatectomy was 1.2 per cent, and for the group treated by transurethral resection 2.2 per cent. An additional 26 patients, admitted during this period with prostatic obstruction at the vesical orifice, died before operation could be carried out. Many were in such a critical state that they would have succumbed whatever the preoperative care; 11 died within five days or less after admission. Fourteen patients died following suprapubic cystotomy. The author believes that perineal prostatectomy, besides being safe and surgically sound, gives excellent functional results with less possibility of a recurrence of obstruction than the resection. Early carcinomas can be recognized and radically treated through the perineum. The perineal route affords dependent drainage to infected bladders and lessens the chance of serious infection of the upper part of the urinary tract. The mortality of 1.6 per cent for 365 public ward patients demonstrates that a low mortality can be obtained with proper care in patients who enter the hospital in poor condition and with many complications.

Kansas Medical Society Journal, Topeka

42:89-132 (March) 1941

Treatment of Chronic Indigestion. W. L. Palmer, Chicago.—p. 89.
Management of Congestive Heart Failure. T. J. Dry, Rochester, Minn.—p. 92.
Principles Necessary in Successful Management of Colon Cancer. K. E. Voldeng, Wellington.—p. 97.
Radiation of Leukemia. A. A. Sprong, Sterling.—p. 102.
Eucupin Infiltrations in Abdominal Surgery. H. L. Collins, Beloit.—p. 106.
Gauze Sponge in Abdomen Twenty-Seven Years. M. A. Walker and C. E. Coburn, Kansas City.—p. 107.

Medical Annals of District of Columbia, Washington

10:79-120 (March) 1941

*Role of Effort, Trauma, Work and Occupation in the Onset and Subsequent Course of Coronary Artery Occlusion. A. M. Master, S. Dack and H. L. Jaffe, New York.—p. 79.
The Patient Has a Stroke. W. Freeman, Washington.—p. 87.
Unusual Reaction to Bee Sting: Report of Case. D. Noble, Rockville, Md., and C. R. L. Halley, Washington.—p. 93.
Rat-Bite Fever in Washington, D. C.: Report of First Proved Case. A. Packchanian and L. K. Sweet, Washington.—p. 95.
Clinicopathologic Conference: George Washington University School of Medicine. R. M. Choisser and W. A. Bloedorn, Washington.—p. 98.

Activity, Onset and Course of Coronary Thrombosis.—Master and his colleagues present a composite picture of coronary thrombosis based on a study of 1,700 proved attacks. The events associated with the onset of 1,108 attacks show that 52 per cent occurred while the patient was asleep or resting, 21 per cent during mild routine activity, 16 per cent while walking, and 9 per cent during moderate activity (ironing, painting, baking and the like). Only 2 per cent of the patients gave a history of unusual physical exertion. At least 75 had been bedridden for considerable periods prior to the occlusion. In 25 of these intimal hemorrhage was just as frequent as in the entire postmortem material. Pain may be related to effort but this must not be confused with the actual attack of coronary occlusion with its premonitory symptoms. The occupation of 1,286 patients was known, and it was found that coronary occlusion occurred with equal frequency among all occupational groups; 35.5 per cent were manual workers, 19.5 per cent housewives, 11 per cent business men, 10 per cent retired, 9.5 per cent white collar and office workers, 9 per cent professional persons and 5.5 per cent store workers. Comparison of this occupational distribution was found to be almost identical with that of the general population of New York City. This close correspondence eliminates occupation as a precipitating factor. From a study of the literature and from their own experience the authors concluded that there was no definite evidence that trauma produced classic coronary occlusion. However, direct and indirect trauma does result in disturbing and contusing the heart. This problem requires further critical investigation. Too often doubtful cases are accepted as proved. Also the effect of experimental trauma on the heart is quoted in respect to coronary occlusion without appreciation of the fact that contusion of the heart, and not coronary occlusion, is produced. The patient's return to work and the subsequent course of coronary occlusion was determined by follow-up data on 422 private and ward patients from all strata of society. They were observed for from six months to fifteen years; 20 per cent were followed five or more years. Of these, 53 per cent returned to work after recovery from the attack; 92 per cent did so within from three months to one year. The percentage of those returning to work was greater among private than among ward patients. Return to work is closely correlated with age; the younger the patient, the more likely is his return. Another significant influence was the presence of previous attacks; 59 per cent of those in their first attack resumed work, whereas only 38 per cent of those in their second attack and 23 per cent of those in their third attack did so. Only half of the laborers resumed their occupation as compared to two thirds of the white collar and office workers and four fifths of the professional persons. The majority of the latter worked full time, whereas half of the workers did only part time work. Many of those who did return to work complained of weakness, precordial pain and dyspnea. This was true of about half of the group, particularly the laborers, white collar workers and

housewives. The symptoms were not severe enough to preclude work and many of them had similar symptoms before the attack. Most of the patients who did not return to work gave as their reason angina pectoris, dyspnea or weakness, and examination disclosed that some degree of heart failure was common. The authors believe that a considerable proportion of them could have resumed work had it been necessary, that is if they had not had disability insurance. Subsequent attacks, the mortality rate and the incidence of heart failure were not greater among those who returned to work than in those who did not. It is apparent that ordinary work following recovery does not predispose to further attacks of coronary occlusion or heart failure.

Oklahoma State Medical Assn. Jour., Oklahoma City

34:93-138 (March) 1941

Skin Manifestations in Diabetes Mellitus. J. H. Lamb and B. F. Keltz, Oklahoma City.—p. 93.
The Negro in Proctology. C. Rosser, Dallas, Texas.—p. 97.
Acute Intussusception in Infants: Report of Two Cases. J. H. Walker, Muskogee.—p. 100.
Collodion as Dressing for Skin Grafting of Granulating Wounds. S. S. Ellis and C. von Wedel, Oklahoma City.—p. 103.
Some Safety Factors in Obstetrics. L. C. Northrup, Tulsa.—p. 106.
Management of a Maternity Service with Nurse Attendance at Delivery in a Rural Area: Preliminary Report. I. Dyer, Tahlequah.—p. 108.

Surgery, St. Louis

9:331-492 (March) 1941

*Chronic Abdominal Pain Due to Hypoglycemia: Note on Pathogenesis of Neurotic Symptomatology. B. P. Sandler, New York.—p. 331.
*Acute Appendicitis in a Suburban Community. J. A. McCreery, New York, and H. P. Serrell, Greenwich, Conn.—p. 349.
Liver Injuries: Case Report of Repeated Hemorrhages Through Biliary Ducts. H. R. Hawthorne, W. W. Oaks and P. H. Neese, Philadelphia.—p. 358.
*Oral Administration of Synthetic Vitamin K (2-Methyl-1, 4-Naphthoquinone). E. R. Anderson, J. E. Karabin, H. L. Udesky and L. Seed, Chicago.—p. 361.
Treatment of External Fistulas of Proximal Small Bowel: Means of Temporary Mechanical Anastomosis. E. A. Macnaughton, Montreal.—p. 372.
Pathologic Study of Hypertrophic Arthritis of Hip. M. H. Sawyer and R. K. Ghormley, Rochester, Minn.—p. 381.
Treatment of Tumors of Shoulder Region by Interscapulothoracic Amputation. J. E. Strode and E. A. Fennel, Honolulu, Hawaii.—p. 394.
Metastases in Skull from Carcinoma of Thyroid: Clinical and Roentgenographic Study of Two Cases with Brief Survey of Literature. O. Turner and W. J. German, New Haven, Conn.—p. 403.
Urinary Stones: Study of Their Etiology in Small Children in Syria. R. K. Brown and Enid Crump Brown, Buffalo.—p. 415.
Disease in the American Negro: I. Melanoma. W. A. D. Anderson, Memphis, Tenn.—p. 425.
Cross Infections from Anesthetic Face Masks. H. Livingstone, F. Heidrick, I. Holicky and G. M. Dack, Chicago.—p. 433.
Observations on Capillary Permeability in Areas of Inflammation Produced by Staphylococci. R. H. Rigdon, Memphis, Tenn.—p. 436.

Chronic Abdominal Pain Due to Hypoglycemia.—Sandler presents histories of 5 patients with long periods of recurrent attacks of abdominal pain due to unrecognized hypoglycemia. All had undergone thorough investigation with the exception of the dextrose tolerance test. Laparotomy was advised as a last resort. Three had appendectomies, 1 cholecystectomy and 1 herniorrhaphy. However, the pain recurred and the patients returned with their original complaints. It was believed that they were neurotic or that they had postoperative adhesions. In addition to the pain there were headache, nervousness, dizziness, sweating, faintness and syncope, symptoms which were not accorded their proper significance. If such symptoms are interpreted as hypoglycemic manifestations the true nature of the syndrome becomes evident. Two women patients had headaches of such frequency and severity as to suggest investigation for cerebral tumor. One of these patients was twice subjected to encephalography. The most successful therapy has been low carbohydrate diet with increased protein and fat. The patient is instructed to take a glass of milk or milk and cream or tomato juice, with a cracker and butter or cheese between meals and at bedtime. Bedtime feeding is especially indicated in nocturnal pain. Relief from pain may be attained after a few days or weeks, because such a diet elevates and stabilizes blood sugar levels. From experimental data it is justifiable to attribute abdominal pain and nervous symptoms in patients with hypoglycemia to the abnormal fall in blood sugar concentration. The pain may be generalized or localized. As long as the patients remained on a low carbohydrate diet they had no pain, but when they returned to their former high carbohydrate intake pain usually recurred after several days. Dextrose tolerance tests revealed increased tolerance in all. The tests should be done along with roentgen studies in cases of obscure abdominal pain. The symptoms may be aggravated by, or may recur, following psychic trauma, mental upsets and financial and domestic difficulties. Such unpleasant environmental factors can bring about visceral and mental symptoms by deranging the carbohydrate metabolism. The effect of unpleasant physical and psychic experiences on the blood sugar are well illustrated by the 5 cases. These 5, the author states, were selected from a larger series of patients with abdominal pain due to hypoglycemia only because laparotomy had been performed. Chronic hypoglycemia is a common disorder masquerading as pseudoulcer, chronic appendicitis, abdominal migraine, abdominal angina, effort syndrome, neurocirculatory asthenia, larval hyperthyroidism and the like. The fact that most of the patients respond to a low carbohydrate diet suggests that the fundamental cause of the disturbance is the continued ingestion of a high carbohydrate diet which contains 200 or more grams of carbohydrate daily. The diet employed in treatment allows approximately 100 Gm. of carbohydrate daily. This amount may be increased gradually as long as the patient continues to be symptom free.

Acute Appendicitis.—McCreery and Serrell review recent literature on the mortality incidence of acute appendicitis and present a study of the disease as it occurred in Greenwich, Conn., a suburban community with a population of 40,000 whose average intelligence is high and whose "health sense" has twice won the annual health conservation certificate awarded by the United States Chamber of Commerce. From June 1, 1933 to Dec. 31, 1939, 525 patients with acute appendicitis were operated on at the Greenwich Hospital. Of this total 449 patients were in the first four decades of life. Previous attacks were had by 154 of the patients. The present attack was typical in 505, atypical in 16 and unnoticed in 4. The first symptom was pain in 507, nausea and vomiting in 9 and diarrhea in 9. Cathartics were taken by 181 of the patients. There was 1 death among 465 patients operated on within forty-eight hours after an attack. Catharsis had an apparently slight effect on delay in operation and on the extent of appendical involvement. It is the authors' impression that cathartics may be more important as a cause in delaying operation than in the actual local damage that they cause. There were 7 deaths in this series, 1.3 per cent. There were no deaths among 396 patients in whom the disease was limited to the appendix nor among the 37 patients with an abscess. One patient with local peritonitis (pelvic) died, a mortality rate in this group of 1.8 per cent. Of 29 patients having diffuse peritonitis, 6 died (20.6 per cent). Four of the 7 patients who died had been sick less than forty-eight hours. At operation all had gross leakage from ruptured appendixes. Bacillus coli was reported in all cultures. Aside from the possible effect of catharsis in 5, vigorous physical therapy may have been a factor in the rupture of one of these appendixes.

Oral Administration of Synthetic Vitamin K.—Anderson and his colleagues gave synthetic vitamin K (2-methyl-1, 4-naphthoquinone) orally to 23 patients with a delayed prothrombin time. The response of 22 was favorable; 1 patient, in a moribund condition as the result of rectal carcinoma, had only a 5 per cent increase in clotting activity. The initial dose of the synthetic compound recommended is 6 mg. with 2 Gm. of bile salts (six capsules of 5 grains [0.32 Gm.] each). The plasma prothrombin level was then maintained with from 3 to 6 mg. of vitamin K and 2 Gm. of bile salts daily. A pronounced response to the synthetic vitamin K almost invariably occurs within one half to one hour. The amount of vitamin K necessary to maintain a normal clotting time varies. Prothrombin determinations are necessary for determining maintenance dosage. Following surgical intervention on the biliary tract the fourth to the seventh postoperative day was the period when the prothrombin activity most frequently reached dangerously low levels. Hypoprothrombinemia may occur with or without jaundice and with or without bleeding. However, it is encountered more frequently in jaundiced patients, particularly if considerable hepatic damage is present.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

53:97-126 (April) 1941

Syndrome of Ehlers-Danlos. H. S. Barber, J. Fiddes and T. H. C. Benians.—p. 97.
Cutaneous Bridges and Fibromatoid Formations in Experiments on Animals. M. Friedmann.—p. 113.

British Journal of Ophthalmology, London

25:141-188 (April) 1941

Measurement of Heterophoria. N. Cridland.—p. 141.
Angiomatosis Retinae: Report of Four Cases in One Family Involving Six Eyes. L. Staz.—p. 167.

Edinburgh Medical Journal

48:145-216 (March) 1941

Observations on Classification of Gliomas. H. Russell.—p. 145.
*Circulatory Collapse and Wound Shock. J. McMichael.—p. 160.
Inspection. F. E. Jardine.—p. 173.
A Student of 1765-1770—A Glimpse of Eighteenth Century Medicine. D. M. Lyon.—p. 185.

48:217-288 (April) 1941

Nutritional Factors in Dark Adaptation. C. P. Stewart.—p. 217.
Physiologic Approach to Medical Problems. R. J. S. McDowall.—p. 238.
Studies on Stored Blood: VI. Changes in Erythrocytes During Storage. A. Crosbie and H. Scarborough.—p. 253.
The Lighter Side of Edinburgh Medical Life at the End of the Nineteenth Century. A. C. Brown.—p. 271.

Circulatory Collapse and Wound Shock.—McMichael states that, owing to the somewhat unexpected course of the war, few studies could be made in cases of shock during the first year. During that time basic studies were made mainly on circulatory collapse from hemorrhage. Recent air raids have broadened the clinical experience, as illustrated by the three types of cases encountered. These cases represent shock due to loss of plasma constituents, shock due to hemorrhage and shock due to the loss of both plasma constituents and blood. From quantitative observations on the circulation the author concludes that trauma leads to loss of blood and transudation of "plasma" in the injured area. As a result, cardiac output is severely depressed, and this results in oxygen deprivation. Oxygen deprivation leads to a further increase in capillary permeability, making treatment difficult, as plasma is not retained. However, in favorable cases the deleterious effect on capillary permeability is reversed if a good circulatory tone can be maintained. For this, early treatment and assiduous and continuous attention are necessary. If the serum transfused is not retained, further transfusion must be given. In a general way a rising pulse rate indicative of circulatory collapse holds true in shock. Racing pulse rates are infrequent, but pulses of from 100 to 120 are common. A slow pulse does not exclude shock. The fall in pulse rate may not be significant when blood pressure is restored. It is often rapid for a day or two after a satisfactory blood pressure has been attained. An increased permeability of capillaries may be indicated by a rise in plasma proteins and a leakage of albumin from the blood. Rising blood urea is encountered in shock, but it is not as high as in hematemesis. A rising serum potassium and falling sodium and chloride appear only after a prolonged low blood pressure. In many instances they are antemortem changes. The distribution of inorganic ions is normally sodium and chloride extracellularly and potassium and phosphate intracellularly. As death approaches, it appears that this important differential cell-membrane permeability is lost, with a rise in serum potassium and a fall in sodium. Early treatment of shock should prevent these changes. The "toxemic" phase of burns has been seen in cases of traumatic edema from extensive crushing. Wilson suggested that the transuded fluid may develop lethal properties. The author's experience suggests that these biochemical changes result from profound renal insufficiency which in some way depends on restoration of circulation through dead muscle tissue. Primary shock which resembles a prolonged faint and is not necessarily associated with severe injury or even with any injury should be differentiated from severe secondary shock. The vasovagal mechanism is probably responsible. It may persist until secondary shock develops and confuses the picture. The diagnosis of shock is best made by blood pressure, pulse records and the clinical state. Of these, blood pressure is all important, as the pulse may be misleading and the clinical state may be simulated by other conditions: primary shock which tends to spontaneous recovery, acute carbon monoxide poisoning, and blast contusion of the lungs in which blood pressure is not lowered unless other injuries causing shock are present. Shocked patients should be treated in a special resuscitation ward. The usual general measures are relief of pain, arrest of hemorrhage, warmth, raising the foot of the bed and the administration of fluid. Some special points are the following: 1. Early and adequate transfusion of blood, plasma or serum should be given until the blood pressure is normal. If the blood pressure falls again further transfusion is indicated. 2. Oxygen may be raised to a concentration of 90 per cent in the alveoli of the lungs by use of the Bulbulian, Lovelace and Boothby mask. It should always be used during a delay in giving a transfusion. 3. In severe crushing injuries the danger to the circulation of the limb and the risk of toxemia make it important to limit transudation. Crushed limbs should be bandaged and elevated to achieve this end. Once toxemia has developed, even amputation may not save life. Decapsulation of the kidneys has not yet been tried. It may be that some biochemical index of the severity of the damage to muscle will have to be found and early "prophylactic" amputation resorted to.

Lancet, London

1:303-336 (March 8) 1941

Dissection Lobectomy. R. S. Pilcher and Eva Byrde.—p. 303.
Acute Nervous Illness in Active Warfare. W. H. de B. Hubert.—p. 306.
Ammonium Chloride and Ammonium Carbonate in Chronic Bronchitis. S. Alstead.—p. 308.
Preservation of Blood for Sugar Analysis. E. J. King, S. S. Pillai and D. Beall.—p. 310.
Staphylococcic Septicemia Treated with Sulfathiazole. J. Heselson.—p. 311.
Vitamins A and D in Dripping. K. M. Henry, S. K. Kon, T. W. Goodwin and R. A. Morton.—p. 311.

Medical Journal of Australia, Sydney

1:345-372 (March 22) 1941

Clinical Impressions of Epidemic of Sandfly Fever in Palestine During 1940. A. S. Walker and L. Dods.—p. 345.
Thyrotrophic and Antithyrotrophic Factors in Some Types of Thyroid Disease. A. R. Robinson.—p. 349.
Investigation into Type Incidence of Pneumococci in Infections of Lower Respiratory Tract. Elizabeth A. Stobo and E. Marjory Little.—p. 356.
Outbreak of Infection Due to Streptobacillus Moniliformis Among Wild Mice. S. Williams.—p. 357.

1:373-404 (March 29) 1941

Warfare and Tropical Medicine. J. O. Poynton.—p. 373.
Some Aspects of Two Common Tropical Diseases. P. A. Maplestone.—p. 377.
Tsutsugamushi Fever in North Queensland, Australia. W. G. Heaslip.—p. 380.

Practitioner, London

146:193-288 (April) 1941

Minor Medical Maladies. H. Rolleston.—p. 193.
Chronic Constipation. A. Abrahams.—p. 195.
Minor Disturbances of Digestion. T. L. Hardy.—p. 201.
Influenza (Acute Infectious Respiratory Catarrh). I. J. Davies.—p. 208.
Acute Sore Throat. F. E. S. Willis.—p. 211.
Bronchitis. F. L. Lander.—p. 219.
Pleurisy. J. Maxwell.—p. 223.
Palpitation and Tachycardia. R. Gilchrist.—p. 227.
Obesity. C. N. Armstrong.—p. 233.
Napkin Area Rashes. L. Forman.—p. 238.
Corns, Warts and Boils. F. F. Hellier.—p. 244.
Migraine. H. L. Parker.—p. 249.
Reactive Emotional Disorders. A. T. M. Wilson.—p. 254.
Transient Seizures Involving Disturbance of Consciousness. P. Cloake.—p. 259.
Pink Disease Treated by Intramuscular Vitamin B_1: Report of Eight Cases. J. D. Hay.—p. 264.
Modern Therapeutics: XXII. Modern Treatment of Intestinal Parasites. P. Manson-Bahr.—p. 271.

Gazzetta degli Ospedali e delle Cliniche, Milan

61:601-620 (July 28) 1940. **Partial Index**

*Alcoholization of Intercostal Nerves in Therapy of Fractures of Ribs. G. Radici.—p. 603.

Alcoholization of Intercostal Nerves.—Radici reports 40 cases of fracture of ribs, with or without pleuropulmonary complications, treated by the Latteri technic. The method consists in roentgenologic identification of the fractured rib or ribs and injection of 0.5 cc. of a 4 per cent solution of procaine hydrochloride followed thirty seconds later by the injection of 2 cc. of 90 per cent alcohol 4 cm. away from the vertebral spinous process, perpendicular to the posterior costal plane of the vertebral spinous process and along the lower margin of the rib up to the costal sulcus. The alcohol is injected slowly. This procedure is repeated for each fractured rib in one treatment, except in the presence of several fractured ribs in old persons. In the elderly, alcoholization is carried out in two or three treatments. In the cases reported local pain caused by respiration was immediately and permanently controlled, and the course of the pleuropulmonary complications, such as emphysema, hemothorax and hemoptysis, was favorably influenced. The author believes that the treatment stimulates normal formation of callus. It is simple and well tolerated. The nerves regenerate within two or three months.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

15:1-68 (Jan.) 1941. **Partial Index**

Injections of Sclerosing Substances in Pulmonary Parenchyma in Attempted Treatment of Pulmonary Tuberculosis. P. Apollonio.—p. 1.
*Rupture of Tuberculous Cavities Causing Spontaneous Pneumothorax in Course of Artificial Pneumothorax. E. Lenci.—p. 20.

Rupture of Tuberculous Cavities.—According to Lenci, rupture of cavities is the most frequent cause of spontaneous pneumothorax in the course of artificial pneumothorax therapy. The author reports 6 cases in which imminent rupture of a cavity was predicted on the basis of peculiar roentgenologic appearance of cavities in the collapsed lung. In 1 case rupture was prevented. Threatening rupture is made evident by the rapid increase in the size of the cavity to one, two or three times the previous size. The cavity appears in the roentgenogram as a clear spherical shadow in the pleural cavity surrounded by a ring of dark homogeneous opacity. The clinical symptoms do not correspond to the aggravation of the pulmonary condition. Suddenly, rupture with consequent spontaneous pneumothorax takes place. If it is not acute, the cavity disappears in the roentgenogram and pleurisy develops. Of the cases reported by the author, 2 were acute. In 3 cases the treatment consisted of immediate removal of intrapleural gas in order to stimulate reexpansion of the lung. The patients were put on complete rest. Drugs to alleviate cough, as well as ephedrine or morphine to prevent bronchial spasm, were administered. Pleurisy was properly treated and, in time, artificial pneumothorax was reestablished. In 1 case rupture and spontaneous pneumothorax were prevented by the aforementioned treatment as soon as the diagnosis of threatening rupture was made.

Revista Medica Latino-Americana, Buenos Aires

26:471-564 (Feb.) 1941. **Partial Index**

*Peyote: Clinical Effects. L. Bard.—p. 471.

Peyote.—Bard reviews the history of peyote from ethnographic, popular and religious aspects, and its effects. Peyote is a spineless cactus which grows in the northern part of Mexico. It contains several alkaloids, one of which is mescaline. The effects of the plant vary with the moral, cultural and constitutional type of the victim and with habituation. Indians frequently become accustomed to its consumption and attribute to it properties of stimulating physical energy and religious feeling. They do not have hallucinations. In the unaccustomed it produces a drunkenness of a special type with an early reaction of physical and mental stimulation followed by euphoria and a second phase of physical and mental sedation and stimulation of the senses, especially of vision and hearing, with consequent production of colored visual and auditory hallucinations. During the first phase the victim presents a wild maniacal appearance and becomes merry and talkative. The eyes are bright, the stare deep and threatening. Mydriasis becomes evident. The acuity of vision and hearing become much increased. Blood pressure is slightly increased and respiration slightly accelerated. Early in the second phase the victim enters into a condition of pleasant semidreaming and euphoria, as though he were in a sphere of calm and beauty. Hallucinations which follow may be so extravagant and fantastic, especially in psychopathic persons, as to compare with those of the Arabian Nights. These two phases are followed by the last short phase of nervous depression. In cases of chronic peyotism chronic changes of the voice, disturbances of digestion and diseases of the digestive tract occur and nervous symptoms appear. The author made clinical observations on 5 normal, not addicted, well educated persons and persons without any cultural education. A dose of 0.2 Gm. of mescaline sulfate by mouth or 0.1 Gm. intramuscularly produced hallucinations. Large doses produced a drunken stupor. Hallucinations may be plain in color, with light or with apparent irradiations. They are capable of appearing in daylight, artificial light or darkness with the eyes opened or closed. The colors are brighter than naturally. In hallucinations of objects seen in darkness, the colors of the short waves of the ocular spectrum are predominant. Auditory hallucinations become associated with the visual. Colored and geographic hallucinations do not necessarily appear when the victims hear the names of vowels, consonants, or names of countries. Hearing names of persons and notes played on a violin cause colored geometrical hallucinations. Peyote hallucinations are extravagant and most often colorful. The type of hallucinations differs with vagotonic and sympatheticotonic persons. In the psychopathic they are so intense and apparently real that they seem almost tangible. Victims with endocrine dysfunctions react differently from normal persons. Although peyote hallucinations are of the schizophrenic type, they differ in their pathologic fields. Patients with schizophrenia are convinced of the concrete presence of the constituent factors of their hallucinations, whereas victims of peyote intoxication recognize hallucinations as such.

Beiträge zur Klinik der Tuberkulose, Berlin

95:173-450 (Sept. 26) 1940. **Partial Index**

Ludolph Brauer's Seventy-Fifth Birthday. H. W. Knipping.—p. 173.
Bilateral Collapse Therapy, Exclusive of Simultaneous Bilateral Intrapleural Pneumothorax. H. Alexander.—p. 182.
*Aspiration Drainage in Tuberculous Lung Cavities. W. Berblinger.—p. 228.
Pulmonary Circulation Under Pathologic Conditions. L. de Carvalho.—p. 262.
*Therapeutic Value of Sanocrysin on Basis of Comparative Clinical Investigations. H. Møllgaard.—p. 369.
Significance of Unusual Spontaneous Healing in Pulmonary Tuberculosis. H. Schulte-Tigges.—p. 409.

Monaldi's Aspiration in Tuberculous Lung Cavities.—Berblinger reports the morphologic observations made at necropsy in 9 cases of pulmonary tuberculosis in which Monaldi's procedure had been employed for cavity drainage. The author's interest lay in examining, both macroscopically and microscopically, the effects of this method on the puncture path, the cavity itself, the cavity walls, the surrounding lung tissues and the draining bronchi. The age of the patients, almost equally divided as to sex, had ranged between 22 and 37 years (45 years in 1 case). Drainage therapy had lasted from eight to ninety-two days (average thirty-three days). The infection concerned cavities of average and very large dimensions in both superior lobes. Only two deaths were directly due to the method used. In nearly all cases, specific tuberculous alterations were observed in the puncture canal, along with nonspecific inflammatory processes, but no complications from this source, the author says, need to be feared. The aspiration method seemed to affect favorably the elimination of the exudative caseous detritus. There is a hyperemic vascularization in the cavity walls, but no serious hemorrhages should occur if the method is properly carried out. In several cases local pericavitary emphysema and pericavitary atelectasis had apparently promoted cavity reduction. In several of such cases

in which obliteration of the cavity could be observed clinically, roentgenologically and anatomically the destructive tuberculous bronchitis had narrowed the draining bronchi, but no bronchitic extension was seen in the fibrous tissue of the closed draining bronchi. When the method did not effect closure of the draining bronchi, regarded by the author as of great importance, it ultimately was able to free the cavity from the specific tuberculous products. Berblinger believes that the pathologic and physiologic bases on which Monaldi's method rests have, to a certain degree, been confirmed by his morphologic investigations. The method, however, should be tried out on a more extensive scale. It possesses two valuable features, evacuation of the cavity contents and closure of the draining bronchi.

Therapeutic Value of Sanocrysin.—Møllgaard compiled the records of a number of hospitals and sanatoriums with regard to the use made of sanocrysin in the treatment of pulmonary tuberculosis both with and without control observations. He found that in five hospitals, in which 346 patients had been treated with sanocrysin and 301 had been used as controls, the favorable results (cures and ameliorations) favored the sanocrysin-treated group with 68.5 per cent as against 37.2 per cent for those given the usual hospital and sanatorium treatment. The negative results (aggravation and mortality rate) were lower for the sanocrysin-treated group (25.2 per cent against 46.5 per cent), the favorable balance affecting all stages of the disease. In checking the degree to which the sputum had become free from bacilli, though the statistics varied for different institutions, sanocrysin therapy was found to be clearly superior in its efficacy not only to sanatorium treatment but also to the therapeutic measures used adjuvantly. Pneumothorax, however, proved to be a good auxiliary yet secondary to sanocrysin. Out of 204 cases pneumothorax was able to produce a bacillary-negative sputum in 115 (56.3 per cent), whereas sanocrysin gave similar results in 184 of 285 cases (64.6 per cent). Sanocrysin may be regarded as helpful also in pneumothorax with contralateral involvement. Statistics of cases in which sanocrysin was employed without control observations seemed to indicate that from 80 to 90 per cent of the milder cases of pulmonary tuberculosis in its initial stages could be clinically cured. According to the author the view that shock, albuminuria and lowered temperature constitute reactions set up by the nonimmune organism, while an elevated temperature is due to partial immunization, has been confirmed by several investigators and by his own experiments on rabbits and calves. A certain affinity seems to exist between sanocrysin and one or more constituent elements of the tuberculous process.

Klinische Wochenschrift, Berlin

19:1273-1296 (Dec. 14) 1940

Experimental Investigations in Chemotherapy of Tuberculosis. R. Prigge.—p. 1273.
Traumatic Heart Lesions. G. W. Parade and B. Rating.—p. 1276.
*Intolerance to Arsphenamine and Vitamin C. A. Welcker.—p. 1281.
Increased Toxicity of Anterior Lobe Hypophysial Extracts After Treatment with Concentrated Sodium Hydroxide in Animal Experimentation. K. von Pallos and L. von Végh.—p. 1286.
Newer Methods of Determining Disturbances in Peripheral Vessels. E. Baráth.—p. 1289.

Intolerance to Arsphenamine and Vitamin C.—Welcker found in his investigation of 22 cases exhibiting intolerance to arsphenamine or arsphenamine dermatitis that the use of vitamin C had a favorable effect on these conditions. While he is of the opinion that no connection exists between vitamin C levels and either clinical phenomenon, the fact that a slight seasonal increase of drug intolerance and dermatitis was observed in the months in which vegetables and fruit are scarce makes it difficult to deny some connection. The administration of vitamin C acted curatively as well as prophylactically. Intravenous or intramuscular doses of 300 mg. a day rapidly controlled inflammation, edema and pyrexia. Experiments with associated drugs gave varied results. In some cases vitamin C therapy could be conducted to a successful termination by changing the particular brand of arsphenamine used. The author does not believe that vitamin C deficiency is causative of arsphenamine dermatitis except in pronounced cases.

Bulletin of the Naval Medical Association, Tokyo

30:1-76 (Jan. 15) 1941. **Partial Index**

*Vitamin C Determination of Cerebrospinal Fluid in Surgical Conditions. I. Kobayashi.—p. 1.
*Weltmann-Havas Reaction and Lactogelification Test (Kopaczewski) in Tuberculosis in Relation to Erythrocyte Sedimentation. T. Okamura.—p. 36.

Vitamin C in Cerebrospinal Fluid.—Using a modification of Tillman's method, Kobayashi made determinations of the vitamin C content of cerebrospinal fluids in 256 patients admitted to the Yokosuka Navy Hospital for surgical treatment of various diseases. In such conditions as hernia, acute appendicitis and hemorrhoids, the vitamin C content was near normal, which in his series was 1.7 mg. per hundred cubic centimeters on the average. A definite relation existed between the vitamin C content of the cerebrospinal fluid and the dietary habits of the patients, since the employees belonging to the low salaried group showed a tendency to lower values as compared with sailors and officers in the higher group. The vitamin C content of the cerebrospinal fluid in commissioned officers was generally high, the highest being 2.6 mg. per hundred cubic centimeters. The lowest figures were encountered among the employees (0.9 mg. per hundred cubic centimeters), although no demonstrable manifestations of vitamin C deficiency were clinically present. The author postulates some constitutional factors which influence the level of vitamin C in the cerebrospinal fluid.

Weltmann-Havas Reaction, Lactogelification and Sedimentation in Tuberculosis.—Okamura endeavored to correlate the results of Weltmann-Havas coagulation band reaction (344 cases) and of lactogelification tests (Kopaczewski) (251 cases) with the erythrocyte sedimentation rate in tuberculosis, using 9 normal subjects as controls. All tests were performed by micromodifications of the original methods, and the results were found to be as reliable as those obtained by the original procedures. The author found that, while no significant correlation existed between the Weltmann reaction and the sedimentation rate, a definite relation did exist between the Kopaczewski test and the suspension stability of the red cells. In tuberculosis the course and prognosis of the disease may be gaged by the use of all these tests.

Taiwan Igakkai Zassi, Taihoku, Formosa

40:1-188 (Jan.) 1941. **Partial Index**

*Read's Formula for Estimation of Basal Metabolic Rate. T. Hattori.—p. 1.

Read's Formula in Basal Metabolism.—Although the accepted method of determining the basal metabolic rate is that of directly measuring the respiratory gas exchange under standard conditions, as originally devised by Knipping, Krogh and others, it can be thus practiced only in laboratories adequately equipped with a suitable instrument. For the approximate calculation of the metabolic rate, especially adaptable for use by clinicians at the patient's bedside, Read (1922) devised a simple formula: 0.75 (pulse rate + pulse pressure × 0.74) — $72 = \pm X\,\%$. After his experience in applying this formula in 600 cases, Read reported the average error to be less than 20 per cent in nine tenths of the determinations, and less than 10 per cent in six tenths, as compared with the results obtained by the standard gas method. Read further added that the formula cannot be used in calculating the basal metabolic rate of patients suffering from decompensated cardiorenal diseases, arrhythmias or hypertension (160 mm. of mercury or over). In order to test the validity of Read's formula, Hattori determined the basal metabolic rate of 50 patients with various diseases including exophthalmic goiter but excluding those with decompensated cardiorenal conditions and with hypertension, by Knipping's gas exchange method. On calculating the metabolic rate from Read's formula in these cases Hattori found that the differences in the metabolic rate obtained by the two methods varied from 3 to 51 per cent, but the results were parallel in approximately half of his cases. From these findings the author concludes that the simplified formula of Read cannot be regarded as a substitute for the direct gas method but that, once the rate has been determined by the gas method, Read's formula can be used for subsequent determinations in following the course of the disease.

Book Notices

A Preliminary Survey of the Industrial Hygiene Problem in the United States. By J. J. Bloomfield, Sanitary Engineer, et al. From the Division of Industrial Hygiene, National Institute of Health. Prepared by direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service, Public Health Bulletin No. 259. Paper. Price, 20 cents. Pp. 132, with 16 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1940.

Public Health Bulletin number 259 summarizes effectively the findings and impressions gained through individual surveys of selected industrial plants conducted by personnel attached to bureaus of industrial hygiene in the health departments of fifteen states. Investigations in each of the states proceeded according to recommendations made by the Division of Industrial Hygiene in the National Institute of Health. An appendix describes in detail the steps taken to accumulate the data and in effect is entitled a reference manual for conducting industrial hygiene surveys. Separate reports had previously been prepared regarding the findings in the several states included in the survey. The most interesting statistics refer to the character of health risks to which workers are exposed in various occupations and the present status of medical, engineering and nursing supervision over working conditions in industrial plants. Observations made in large industries are for the most part encouraging. As far as the smaller plants are concerned, relatively few have undertaken to avail themselves of modern preventive industrial medicine. In this connection it is felt that divisions of industrial hygiene in state health departments can be of genuine assistance to the small plant operator in the detection and control of causes of lost time disability. Such activity can hardly fail to create a demand for competent industrial physicians and nurses. One important step in that direction is to arrange for proper recording of industrial absenteeism. The plan which has been devised by the U. S. Public Health Service is incorporated in the pamphlet, and instructions are provided regarding the use of recommended forms and blanks. The report emphasizes the need for proper integration between industrial hygiene services provided by official governmental agencies and the activities of independent organizations in this field. Particularly is it considered essential that industrial hygiene be correlated with the motivations and policies governing adult hygiene programs in general and with the efforts in this direction contributed by the practicing medical profession.

The Phosphatase Test for Control of Efficiency of Pasteurization. By H. D. Kay, R. Aschaffenburg and F. K. Neave. Imperial Bureau of Dairy Science, Technical Communication No. 1. Paper. Price, 2s. Pp. 53. Shinfield, Reading, England, 1939.

The phosphatase test has developed, during the past six years, into the most useful weapon for controlling the efficiency of milk pasteurization. The basis for this development is the fortunate combination of properties which this enzyme possesses in relation to milk. It is present in reasonably large quantities in all samples of raw milk; it remains practically unchanged for many hours in unheated milk, and for days if this milk is kept cold; its thermal stability is such that it is almost completely destroyed by exposure of the milk to the minimum temperature and time requirements for "legal" pasteurization; it is rather more resistant to heat than the common pathogenic organisms that may occur in raw milk; it is, in particular, slightly more resistant to heat over all ranges of time and temperature of heat exposure than is the tubercle organism; it can be detected and estimated in raw or heated milk in very small quantities; its detection and estimation in small quantities, though requiring a certain degree of laboratory skill and experience, is not difficult and needs neither elaborate apparatus nor complicated technic.

In connection with high temperature short time pasteurization, it will probably provide as sensitive and searching a method of control as it has provided for the "holder" pasteurization.

The chief medical officer of the Ministry of Health (England and Wales) stated, in 1936, "the phosphatase test is a valuable supplement to inspection of the plant and a positive result affords convincing evidence that pasteurization has not been efficiently carried out. The obligation to detect in what way the pasteurization plant or technic is at fault actually rests with the licensee, and if he cannot deliver milk which satisfies the requirements of the phosphatase test he should not continue to hold a license."

Although the "holder" type of pasteurization is the only approved heat treatment permitted in Great Britain, it has been proposed that countries permitting other types of pasteurization should lay down no temperature or time conditions but simply insist that in heat-treated milk the phosphatase test, carried out under closely defined conditions, shall be negative, and the heating plant shall be otherwise satisfactory to the inspecting authority.

The U. S. Association of Official Agricultural Chemists has adopted Gilcreas and Davis's modification of the Kay-Graham test as a "tentative" method and has just completed a study of Scharer's short modification of the test. The American Public Health Association is considering studying the test to suggest modifications for the purpose of proposing a standard procedure.

In reviewing the present status of the phosphatase test, the authors have endeavored to draw attention to the various problems still awaiting solution, particularly those regarding products other than milk, in the hope that this course will stimulate further investigations. They confidently expect that further research will achieve for milk products what it has already achieved for milk itself, namely the provision in the phosphatase test of a safe and reliable method for controlling and supervising pasteurization.

Eugenic Sterilization in the United States: A Comparative Summary of Statutes and Review of Court Decisions. By James E. Hughes. Federal Security Agency, United States Public Health Service, Division of Sanitary Reports and Statistics. Supplement No. 162 to the Public Health Reports. Paper. Price, 10 cents. Pp. 45. Washington, D. C.: Supt. of Doc., Government Printing Office, 1940.

This pamphlet renders a striking service in the manner in which it presents in its first division a concise summary of the pertinent statutes of the thirty states that now authorize the performance of asexualization operations on socially inadequate persons. The summary is made easily comprehensible by the use of a series of tables, each table confined to one particular general aspect of the laws. Table 1, for instance, indicates the socially inadequate conditions (such as feeblemindedness, insanity, epilepsy, habitual criminality, moral degeneracy or sexual perversion) which under each state law may be the basis of the asexualization procedure. There are similar tables indicating (1) whether the procedure can be applied only to inmates of state institutions or whether it can be applied to any affected person in the state, (2) the operations authorized, (3) initiating and adjudicating procedure, and (4) various other more technical, legal details, such as the type of proceeding, legal notice and appeal provisions. The pamphlet does not purport to, nor does it set out, the laws in full. A second division of the pamphlet consists of a review and an abstract of the decisions of courts of appellate jurisdiction that have construed the sterilization statutes. In the appendix there is a comprehensive and valuable list of the literature on sterilization in legal periodicals and of the general literature on sterilization. On the whole, the pamphlet is decidedly worth while and should be in the library of any one at all interested in the field of human sterilization.

Anatomie des Menschen: Ein Lehrbuch für Studierende und Ärzte. Von Hermann Braus. Band IV: Periphere Leitungsbahnen II. Haut und Sinnesorgane. Vegetatives Nervensystem. Fortgeführt von Curt Elze, o. ö. Professor an der Universität Direktor der Anatomie, Würzburg. Cloth. Price, 36 marks. Pp. 571, with 315 illustrations. Berlin: Julius Springer, 1940.

The blight of Hitler has not seriously injured Braus's textbook. The book as a whole is one of the best and differs from others so much in plan, conception and treatment that it should be in every good library of anatomy. Its special merits are: 1. Its close and thorough integration with general biology: Braus was a great biologist. Recently acquired biologic knowledge is seen to bring a good deal of help to our study of human structure and function. On a foundation of sound embryology this book integrates physiology and morphology. 2. Its consideration of the full course of life from development to senescence. 3. Its illustrations, which are beautiful and instructive and which by themselves constitute a valuable contribution to the already rich literature of anatomy. One defect lies in the relatively scant attention given the lymphatic system.

This volume has been edited by Prof. Curt Elze of Würzburg. Braus died in 1924 after the publication of the first two volumes. Elze continued the work, preparing second editions of those volumes and also volume III (1932) and volume IV (1940). The present volume deals (1) with the peripheral distribution of vessels (arterial, venous and lymphatic), of cerebrospinal nerves, (2) with the vegetative nervous system and (3) with the skin and sense organs. The vessels and peripheral nerves are considered together on a regional basis (trunk, extremities and head). The innervation of bones is treated much more satisfactorily than in most textbooks. A section of ten pages is devoted to a general consideration of the relationships between peripheral parts and the central nervous system. Thirty-seven pages are allotted to the vegetative nervous system, including the recent work of Otfried Foerster of Breslau done partly on lower animals and including three tables prepared by him showing the course of nerves from individual viscera through this system and their continuity or connection with anterior or posterior roots of individual spinal nerves. The treatment of head structures is interesting in that the poetic notion of the continuation of the segmentation of the trunk into the head does not appear. This theory, including a vertebrae theory of the skull, was dear to some of Braus's teachers. Professor Elze passes it by, treating the head as a special part.

All students of anatomy, the world over, will be grateful to Professors Braus and Elze and to their collaborators for an invaluable textbook on human anatomy.

Mine Eyes Have Seen: A Woman Doctor's Saga. By Alfreda Withington, M.D. With an introduction by the Late Sir Wilfred Grenfell. Cloth. Price, $3.50. Pp. 311, with 41 illustrations. New York. E. P. Dutton & Co., Inc., 1941.

The author, Alfreda Withington, was one of the pioneer woman physicians in this country, having matriculated at the Woman's Medical College of the New York Infirmary in 1883. After graduation she traveled in Europe, studying in Vienna, Prague and other medical centers, and then located at Pittsfield, Mass., where she practiced for many years. In 1907 she went to Labrador to assist Sir Wilfred Grenfell for a season in his humanitarian work among the fishermen, then to return to Pittsfield. She became interested in the American Red Cross and, during the first World War, applied in 1917 for permission to serve with the Red Cross abroad. Returning to Pittsfield in 1921 with the vivid experience of war, she found it difficult to carry on in the previous ways. An advertisement in THE JOURNAL called for a woman doctor for settlement work in the Kentucky mountains, all calls to be made on horseback. She applied and was accepted. The review of her medical experience in the Kentucky mountains is well written and is the best part of this interesting book.

Disorders of the Blood: Diagnosis, Pathology, Treatment and Technique. By Lionel E. H. Whitby, C.V.O., M.C., M.D., Assistant Pathologist, The Bland-Sutton Institute of Pathology, The Middlesex Hospital, London, and C. J. C. Britton, M.D., D.P.H., Assistant Pathologist, The Bland-Sutton Institute of Pathology, The Middlesex Hospital. Third edition. Cloth. Price, $7.50. Pp. 603, with 73 illustrations. Philadelphia: Blakiston Company, 1939.

In the present edition this work has been satisfactorily brought up to date. New material has been included mainly with reference to the hemolytic anemias, sternal biopsy and the hemorrhagic states. The beginning chapters are designed to provide a theoretical background for the study of hematology. They deal with the embryology of hemocytogenesis, the theories of its continuation in postnatal life under normal and abnormal conditions, and they review the information at hand concerned with the function and fate of the cells of the blood. The various theories of blood cell formation are mentioned, but that based on the work of Sabin, Doan and Cunningham is emphasized. The identification of the megaloblast as the precursor of the normal line of erythropoiesis is adhered to throughout, although mention is made of the fact that this is not universally accepted. The interpretation of the information derived from laboratory examinations of the blood is considered. The pathogenesis of the anemias is dealt with and the nature and mode of action of hemopoietic substances are discussed. Subsequent chapters deal with the various blood dyscrasias and related disorders grouped according to clinical diagnoses. The clinical features, blood and pathologic changes, differential diagnosis, course, prognosis and treatment are considered. Miscellaneous conditions in which changes in the blood occur are briefly considered. A chapter is devoted to blood transfusions and one to disorders involving the blood pigments. The final chapter adequately describes the technic of carrying out the laboratory tests commonly employed in hematologic diagnosis. The book is clearly written; the material is judiciously chosen and well presented in a serviceable fashion. The subdivision of the chapters in a logical manner with bold type captions makes the material readily available, and inclusion of a summary at the end of the longer chapters will appeal particularly to medical students. The references at the end of each chapter include many recent articles and, although not exhaustive, are certainly representative.

McGillycuddy Agent: A Biography of Dr. Valentine T. McGillycuddy. By Julia B. McGillycuddy. Cloth. Price, $3. Pp. 291, with 16 illustrations. Stanford University, Calif.: Stanford University Press: London: Oxford University Press, 1941.

McGillycuddy, a young graduate of Detroit Medical College, was advised on account of his health to go west and live in the open. That seems to have been sound advice, for he was 90 years old when he died two years ago. Many of those were strenuous years spent in army camps and outposts in the Dakotas, Nebraska and Wyoming, in the thick of Indian warfare in campaigns against the Sioux and the Cheyennes. McGillycuddy was nearby when Custer's gallant band was annihilated; he witnessed the killing of Crazy Horse, the famous Sioux warrier; he took part in many counsels with Indian chiefs to assist in pacifying the Indians and preparing the western plains for the influx of the white man to that region. McGillycuddy later was appointed agent at Pine Ridge, which was the largest Indian agency in the country. He was a power among the huge Indian tribes, but with a change in the administration he was relieved of that responsibility, to settle down in Rapid City as a banker, as surgeon general on the governor's staff and as a developer of hydroelectric plants. He next went to San Francisco as medical inspector for an insurance company, a position which permitted him to travel over the great plains again and relive the hazardous but interesting life of Indian days. The spirit of the pioneers, the sadness of Indians driven from their lands, and the tramp of herds of buffalo are in these exciting stories.

O pishchevykh i oboronitelnykh sekretornykh i dvigatelnykh bezuslovnykh reaktsiyakh u sobaki. [By] R. B. Garibyan. [Alimentary and Defensive Secretory and Motor Unconditioned Reflexes in Dogs] Paper. Price, 3 rubles. Pp. 91, with 61 illustrations. Rostov on Don: Rostovskoe Oblastnoe Knigoizdatelstvo, 1939.

The monograph by Garibyan is a report on experimental work carried out in the physiologic laboratory of the Medical Institute of Rostov. It represents an interesting approach to the problem of the influence of the midbrain on behavior. The author proceeds from the premises of Pavlov that there exist special centers for the alimentary and the defense reflexes. The author made use of the well known method of demonstrating the alimentary reflex through observation of salivary secretion. The defense reactions were studied by systematic observations of the oral movements in response to direct stimuli. The specificity of the frequency of these movements proved to be an even more constant index than the specificity of the salivary response. This is a preliminary investigation whose ultimate aim is to elucidate the role of the midbrain, which is regarded as a stage in the evolutionary development reflecting an important phase in the development of the unification of reactions of an animal to its surroundings. The monograph should prove of interest to the physiologist and the neuropathologist.

The Anaerobic Bacteria and Their Activities in Nature and Disease. A Subject Bibliography. By L. S. McClung and Elizabeth McCoy. Supplement I: Literature for 1938 and 1939. Cloth. Price, $3.50. Pp. 244. Berkeley & Los Angeles: University of California Press; London: Cambridge University Press, 1941.

In this book the authors have gathered together a chronological list of references on the anaerobic bacteria for the years 1938 and 1939 (and some from 1940). The bibliography is classified and includes headings for habitat, culture methods, metabolism and relations to disease. The book should be exceedingly useful to all those engaged in laboratory or clinical work dealing with organisms of this group.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SMOKING AND PEPTIC ULCER

To the Editor:—Kindly advise whether or not there is authentic evidence that smoking slows up or stops improvement in the treatment (medical) of peptic ulcer.

M.D., Illinois

ANSWER.—It is not uncommonly stated or implied in the literature that smoking may delay healing or favor recurrence of chronic peptic ulcer, particularly when smoking is excessive. This impression is based largely on the clinical observation that in some people ulcer symptoms seemingly appear or become aggravated when more than a certain amount of tobacco is used. In others, distress may appear to be more readily controlled when they do not smoke. Such indirect evidence, although inconclusive, cannot be entirely disregarded. The fact that smoking is without apparent deleterious effect on most ulcer patients does not, of course, exclude the possibility that it may be harmful to a few. The clinical evidence, however, is equivocal. In many of the most difficult ulcer cases tobacco has never been used, whereas tractable ulcers are not infrequently encountered in inveterate smokers.

Hurst and Stewart (Gastric and Duodenal Ulcer, New York, Oxford University Press, 1929, p. 69) attributed an important role to smoking, particularly in cases of duodenal ulcer. In additional to some clinical impressions, they cite statistical data in support of this contention. They were impressed by the apparently increasing incidence of duodenal ulcer in women since smoking became more prevalent among them. Conclusive statistical evidence is lacking, however, that women smokers have a higher incidence of duodenal ulcer than nonsmokers. It should be stressed that the roentgenologist's ability to diagnose duodenal ulcer has advanced greatly in the past twenty to twenty-five years and this is, perhaps, not always sufficiently emphasized in the analysis of statistical information. Schnedorf and Ivy (Effect of Tobacco Smoking on Alimentary Tract: Experimental Study of Man and Animals, THE JOURNAL, March 11, 1939, p. 898) studied the effect of tobacco smoke and nicotine on the alimentary tract of human beings and dogs. They summarized their observations as follows:

"Smoking reflexly stimulates the secretion of saliva in most subjects. It reflexly inhibits or depresses the hunger motility of the stomach. When the smoking of an ordinary number of cigarets has any effect on the stomach, it tends to depress secretion and to retard evacuation. Only in the occasional person does smoking tend to cause significant gastric retention and an increase in acidity. . . . None of the data we have obtained can be interpreted as directly indicating that smoking has a beneficial effect on the activities of the alimentary tract." These observations would seem to indicate that, in the majority of subjects with or without peptic ulcer at the time of the experiment, smoking caused no effect which would retard the healing of an ulcer. It should be noted, however, that in an occasional person smoking caused a significant gastric retention and an increase in acidity. In such an occasional person smoking could conceivably interfere with or delay healing of a peptic ulcer. There is, however, no conclusive clinical or experimental evidence to indicate that this has actually been observed.

HYDROA VACCINIFORME

To the Editor:—During the past three years I have seen a number of cases of hydroa vacciniforme among young Indians in South Dakota and Montana. Many of the cases are of a severe nature, especially during the summer. All treatment recommended in dermatologic books is merely of a palliative type, the lesions reappearing on exposure to sun, wind and dust. Can you recommend any specific therapy?

Dean J. Darius, M.D., Lame Deer, Mont.

ANSWER.—Hydroa vacciniforme is anything but a common disease and it is remarkable to see so many cases among the Indians of the Northwest. If the diagnosis is correct, an investigation of these tribes offers a promising field for the study of the light-sensitive dermatoses. In answer to a question on the subject of light sensitivity (Hypersensitiveness to Light, THE JOURNAL, March 31, 1934, p. 1103) several possible etiologic factors that should be investigated in cases of this nature were suggested: the possible ingestion of sulfonal, lead poisoning, inadequacy of the liver and the ingestion of buckwheat. There are many other substances besides sulfonal and buckwheat which produce hypersensitivity to light, though they are perhaps less liable than these to be encountered in ordinary cases.

No specific treatment can be offered for this condition except the removal of sensitizing substances from the diet if these can be found or protection of the skin from light. A 5 per cent solution of disodium naphthol sulfonate in alcohol as a protective has been suggested. The most efficient protection was found by Bachem and Fantus (Evolution of Skin Protection Against Ultraviolet Rays, *Arch. Phys. Therapy* **20**:69 [Feb.] 1939) to be afforded by an opaque powder, cuticolor titanium dioxide, composed of 6 parts of red ferric oxide, 8 parts of yellow ferric oxide and 86 parts of titanium dioxide. A lotion may be prepared as follows: 15 parts of cuticolor titanium dioxide, 2½ parts of bentonite and stronger rose water to make 100 parts. Mix the bentonite and rose water and let stand over night or at least several hours. Decant, discarding the sediment. To the cuticolor titanium dioxide in a mortar add the bentonite solution in portions with trituration after each portion, until the mixture is brought to the full amount.

The investigations of Bachem and Fantus also showed that of the ointment bases yellow petrolatum and wool fat are the best for protection against light. An ointment may be made of 15 parts cuticolor titanium dioxide, 10 parts liquid petrolatum, 12½ parts anhydrous wool fat, 37½ parts yellow petrolatum and 25 parts stronger rose water. Mix the petrolatum and the wool fat, and incorporate the rose water in small portions until it is emulsified completely. Add the cuticolor titanium dioxide, incorporate thoroughly until smooth and then add the liquid petrolatum and mix until smooth.

Anderson and Ayres (Light Sensitive Dermatoses, THE JOURNAL, Oct. 27, 1934, p. 1279) mentioned Urbach's use of a carbohydrate and liver diet in cases of actinic dermatitis, on the theory that the efficient liver protects against such sensitivity by destroying the sensitizing substances.

In a situation such as is suggested by the query, the presence of so many cases of light sensitivity among the members of a group which no doubt has a dietary different from the ordinary, the possibility of vitamin deficiency should not be overlooked.

PROBABLE PILOCARPINE INTOXICATION

To the Editor:—A white woman aged 62 has been noticing increasing weakness, loss of weight, mental depression bordering on melancholia, nausea, occasional vomiting, profuse salivation and sweating and a low grade temperature on occasions. Examination reveals the following pertinent data: a glass right eye; a constricted, nonreacting left pupil; evidence of loss of weight; profuse salivation (there are two dental plates without irritation in the mouth); sweating; a pulse regular with occasional premature ventricular contractions and normal blood pressure. The bowels are somewhat constipated, and pelvic examination shows atrophic organs without evidence of any other pathologic condition. Postmenopausal bleeding prompted a diagnostic curettage, which revealed fibrotic endometrial tissue without evidence of malignancy. Gastric analysis showed normal acid values. There is a moderate secondary anemia. Roentgenograms of the gastrointestinal tract showed intense hypermotility of the entire tract. Ten minutes after the patient ingested barium sulfate, some could be seen in the transverse colon. The entire colon showed hypertonicity. On close questioning, it is revealed that the patient has been using about 6 drops of 1 per cent pilocarpine in the left eye daily for about ten years. Is it possible that she has a chronic form of poisoning with pilocarpine from systemic absorption? Please discuss this. I would appreciate references in the literature about similar cases.

Lawrence S. Ward, M.D., Niantic, Conn.

ANSWER.—Absorption of pilocarpine from the gastrointestinal tract is slow, and the action is prolonged. It is excreted in the urine both unchanged and conjugated. In all probability the 6 drops used daily were used 1 or 2 drops at a time, which would give a continuous absorption. Even minute doses of pilocarpine cause a hypermotility of the stomach and the bowels with a hypertonicity of the entire gastrointestinal tract but especially of the colon. The pylorus and the ileocolic sphincter may be caused to contract and thus, at times, the passage of food may be delayed. Pilocarpine may cause nausea and occasional vomiting. This is due to its central action. It also causes profuse salivation and sweating and a fixation and constriction of the pupil.

The patient described apparently was taking about 1/6 grain (0.004 Gm.) daily. This is admittedly a small dose but was used in such a way that there was a gradual and almost continuous absorption. Used over a long time this could cause a chronic intoxication. The symptoms are certainly in accord with what might be expected. The nausea and occasional vomiting, the moderate degree of constipation, which may be due to the action of the drug on the sphincters of the gastrointestinal tract as well as the considerable loss of fluid from the body through profuse sweating, the hypermotility of the entire tract,

the hypertonicity of the colon, the loss in weight, the profuse sweating and salivation and the fixed, constricted pupil are all consistent with a diagnosis of chronic intoxication with pilocarpine.

As a therapeutic and diagnostic test, atropine sulfate could be given unless there is a definite contraindication to this. Relief from many of the aforementioned symptoms would be further proof of the correctness of the diagnosis.

A search of the literature has failed to reveal records of similar cases.

POSTMENOPAUSAL ATYPICAL MIGRAINE

To the Editor:—A healthy woman aged 51, who has passed the menopause, has had headaches for the past thirty years, at first with each menstrual period but now occurring once or twice weekly, usually on Wednesday or Saturday, and with increasing intensity. The distribution is behind the eye, over the cheek and in the occipital region, sometimes on the left and sometimes on the right side. The headaches last from several hours to thirty-six hours. The frontal area is rarely if ever involved. Headaches begin about 3 p. m., never in the morning or night, and usually continue through the next day if not attended to. Acetylsalicylic acid and phenacetin compound at the onset of the headache sometimes controls it, but usually the patient resorts to hypodermic injections of gynergen (ergotamine tartrate) for relief, and this is just transient. Headaches are not preceded by an aura of dimness of vision or diplopia, although her attacks have been branded as migraine. She never has gastrointestinal symptoms with attacks. She has had two pregnancies and normal deliveries, with a significant history of headache for the first three months in each case and absence of headaches for the last six months, the only prolonged absence of headaches in the past thirty years. Asthenia is excessive; she is tired all the time. The blood pressure is 110 systolic and 80 diastolic, the pulse rate 74, and the blood cell count normal. The last determined basal metabolic rate six months ago was — 13 per cent. Amniotin was given intramuscularly for her hot flashes, but this had no effect on the headaches. During one of her attacks there was a definite engorgement of the temporal vein on the affected side. No other signs were present. I cocainized the sphenopalatine ganglion on the involved side and washed out the posterior sinuses by the Proetz method with some amelioration but no cessation. On the supposition that this was a "histamine" type of headache or vascular headache as reported by Horton and McLean (*Proc. Staff Meet., Mayo Clin.* **14**:257 [April 26] 1939) I started her on the histamine therapy as they advise. In addition I administered 3 cc. of aqueous corpus luteum extract by injection. Can you tell me from the description what I'm dealing with? Is it a hormonal, estrogenic, vascular or other type of headache? What factor was responsible for the cessation of headaches for six months during the last two trimesters of her pregnancies? Was it a corpus luteum or a pituitary hormonal factor that brought on the relief? I feel that if I can replace in her present makeup that which was present at the time of the last six months of her pregnancy the problem will be solved. I have given her ½ grain (0.03 Gm.) of a thyroid preparation twice daily for the past week, but this made her nervous and caused her pulse rate to rise to from 90 to 96 by night time. I have since stopped this medication.

M.D., California.

ANSWER.—Thirty years of recurrent, alternating hemicrania, at first coincidental with the menses and now (postmenopausally) occurring twice a week, is suggestive of migraine. Absence of headaches during the last six months of each pregnancy is characteristic of migraine, as are the swollen temporal vein during a headache and the habitual relief with ergotamine tartrate.

The location of the headache, as well as the absence of visual and gastric symptoms, is atypical but not exclusive. The patient described seems to be suffering from the all too frequent picture of postmenopausal atypical migraine. Therapy in these cases is difficult.

In any case of migraine it is difficult to determine whether the situation is primarily hormonal, allergic or due to some other factor. In all, the pain is fundamentally vascular or perivascular. The cause of the migraine is probably not endocrine, since headaches occurred in the presence or absence of ovaries. It is probable, however, that the hormonal secretions influenced the migraine secondarily. Reproduction of the conditions obtaining during pregnancy is difficult because of large amounts of estrogen and progesterone which are circulating during pregnancy. Neither pituitary nor thyroid has been found helpful. Too much faith should not be placed in endocrine therapy. If it is unsuccessful, ligation and section of the temporal arteries may be considered. One should be done at a time, the second section depending on the results of the first. In this case ligation of the occipital artery may be indicated.

It is of vital importance to treat the patient as a whole. Estrogenic therapy is indicated for the continued menopause, irrespective of its effect on the headache. Psychologic and social problems should be corrected, diet maintained, the bowels regulated. The use of 7 liters of oxygen per minute for from one to three hours by inhalation with a Boothby mask is also to be strongly recommended in a case such as this as a means of aborting individual attacks.

When it is necessary to use ergotamine tartrate, it must be given early in the attack, 1 cc. given subcutaneously (0.5 mg.) or 5 mg. by mouth being used. Ergotamine tartrate is not curative but merely aborts each attack. If the optimal dose is effective, it should be gradually reduced to the minimal effective level.

SIGNS IN HYPERTENSIVE HEART DISEASE AND NEPHRITIS

To the Editor:—Several controversial points have arisen here in the past month. A resort to books has been to no avail. It seems to be difficult to believe their statements when they conflict with actual experience. Here are the points in question: 1. In the great majority of cases of hypertensive heart disease, a systolic murmur is heard at the apex. 2. Dull pain in the lumbar region is frequently a symptom of acute nephritis. 3. (*a*) With few red blood cells in the urine, it follows that albumin will almost always be found; (*b*) with many red cells present in the urine, albumin will always be found; (*c*) when a few granular casts are seen microscopically, albumin should be detected in the urine.

M.D., New York.

ANSWER.—1. It is true that an apical systolic murmur is heard in the great majority of cases of hypertensive heart disease if this diagnosis is made on the basis of chronic hypertension and definite cardiac enlargement, preferably with some symptoms of weakness of the left ventricle. Relative dilatation of the mitral ring or arteriosclerotic changes in the leaflets may account for the murmur.

2. Yes; but it is of little diagnostic value in this disease.

3. (*a*) This is true if the microscopic hematuria is the result of glomerulonephritis or diffuse renal vascular disease but not if it is due to conditions in the lower part of the urinary tract or other urologic conditions. (*b*) This is true because blood plasma or serum is then present in the urine in sufficient amounts to give positive protein reactions. (*c*) This is not necessarily true, because a few casts may form as the result of localized tubular damage in the absence of proteinuria, which arises from the glomeruli. Furthermore, a small amount of protein may not be detectable in dilute urine by the ordinary clinical tests, particularly if the urine is not properly acidified.

SENSITIVITY TO COLD AND DRAFTS

To the Editor:—A few patients complain of feeling cold even in temperatures of 72 F. and usually need 78 F. to be comfortable in their homes. I have one at present whose blood and metabolism are normal and who is well in other respects but chills easily, as in theaters, from the slightest motion of air. I hear that injection of calcium remedies such a complaint. If so please inform me the form and amount as well as any other specific cure. This otherwise healthy patient, aged 50, has been unable to travel to a milder climate and has felt the cold here in the winter although the temperature seldom falls below 40 F. With extra heavy clothes or when exercising, he is comfortable provided he does not perspire excessively. If the latter is the case, he finds that he is chilly soon unless relieved by a warm bath followed by a cold shower and a change of underclothes.

M.D., Oregon.

ANSWER.—Sensitivity to cold usually implies poor circulation. There are numerous explanations for a decrease in the amount of blood passing through the peripheral tissues, but one should always bear in mind mild degrees of hypothyroidism. Although the patient in question is said to have a normal metabolism, it must be borne in mind that the first determinations are frequently higher than the true metabolic rate. If the patients in question suffer from chronic fatigue, irritability, dry hair, dry skin and brittle nails, it would be worth trying thyroid in a dosage of 0.03 Gm. (½ grain) daily for at least a month. Sometimes a second metabolism test while on a small dose of thyroid will be found lower than the original determination.

RIGOR MORTIS OF FETUS

To the Editor:—Is a baby which dies in utero ever born in complete rigor mortis, if the delivery takes place within a few hours after death of the fetus?

Raymond H. Goodale, M.D., Worcester, Mass.

ANSWER.—Rigor mortis occurs in the dead fetus both ante and post partum. As compared with adult bodies, this phenomenon develops early and disappears rapidly. Paddock (*Am. J. Obst. & Gynec.* **48**:145 [Aug.] 1903) reported 2 cases, 1 in a multipara and the other in a primipara in which dystocia was caused by the development of rigor mortis in a dead fetus in utero. For a comprehensive review of the subject the inquirer is referred to Dr. W. J. Ballantyne (*Teratologica* **2**:96 [April] 1895). Other references:

Taylor, A. S.: Principles and Practice of Medical Jurisprudence, ed. 9, London, J. & A. Churchill, 1934, vol. 1.

Smith, Sidney: Forensic Medicine, ed. 4, London, J. & A. Churchill, 1934, p. 19.